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MATHS

BOOKS - VGS BRILLIANT MATHS (TELUGU ENGLISH)

QUADRATIC EQUATIONS

QUADRATIC EQUATIONS (MULTIPLE CHOICE QUESTION)

1. $2x^2+3x-1=0$ is a quadratic equation the roots are α, β then $\alpha^2+\beta^2$=..........

A. $\frac{13}{4}$

B. $\frac{-13}{4}$

C. $\frac{4}{13}$

D. $\frac{-4}{13}$

Answer: A

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2. $3x^2 - 5x + 2 = 0$ is a quadratic equation the roots are α, β then $\alpha^3 + \beta^3$ is...........

A. $\frac{27}{35}$

B. $\frac{35}{27}$

C. $\frac{-35}{27}$

D. $\frac{-27}{35}$

Answer: B

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3. $x^2 + px + q = 0$ is a quadratic equation, the roots are α, β then $\alpha^4 + \beta^4$ is..........

A. $p^4 + 4p^2q + 2q^2$

B. $p^4 + q^4 - 2p^2q^2$

C. $p^4 - 4p^2q + 2q^2$

D. $p^4 + q^4 + 2p^2q^2$

Answer: C

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4. The quadratic equation whose roots are reciprocal of the roots of the equation $ax^2 + bx + c = 0$ is-

A. $cx^2 - bx - a = 0$

B. $cx^2 - bx = 0$

C. $cx^2 + bx - a = 0$

D. $cx^2 + bx + a = 0$

Answer: D

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5. IF $a > 0$ then the minimum value of $3x^2 + 4x + 1$ is.......

A. $\frac{-1}{3}$

B. $\frac{1}{3}$

C. $\frac{2}{3}$

D. $\frac{-2}{3}$

Answer: A

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6. If $x > 0$, then the minimum value of $\frac{11}{3} + 5\left(x - \frac{7}{2}\right)^2$ is.........

A. $\frac{3}{11}$

B. $\frac{11}{3}$

C. $\frac{-3}{11}$

D. $\frac{-11}{3}$

Answer: B

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7. Examine $3y^2 - 8xy - 3x^2 - 29x + 3y - 18$ is re-solvable into two linear factors.

A. $\Delta \neq 0$

B. $\Delta^2 = 0$

C. $\Delta = 0$

D. $\Delta^3 = 0$

Answer: C

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8. Solve:x(x+y+z)=6,

$y(x + y + z) = 12, z(x + y + z) = 18$

A. x=0

B. x=-2

C. x=3

D. x=± 1

Answer: D

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9. The area of a rectangular plot is $528m^2$. The length of the plot is one more than twice its breadth. The length and breadth of the plot are

A. 33m,16m

B. 32m,15m

C. 30m,14m

D. 28m,12m

Answer: A

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10. IF $x^2-4x+3=0, x^2-5x+k=0$ have a common root, then k

A. 1,3

B. 4,6

C. 1,4

D. 3,6

Answer: B

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11. IF one root of $x^2-x-k=0$ is square that of the other, then k=.........

A. 1

B. $2+\sqrt{5}$

C. $2-\sqrt{5}$

D. $2\pm\sqrt{5}$

Answer: D

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12. IF the sum of the roots of $ax^2+bx+c=0$ is equal to the sum of the squares of the roots, then........

A. $b^2+ab=2ac$

B. $a^2+bc=2ab$

C. $c^2+ab=2bc$

D. None

Answer: A

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13. IF $\alpha^2 = 5\alpha - 6, \beta^2 = 5\beta - 6, \alpha \ne \beta$ then the equation whose roots $\frac{\alpha}{\beta}, \frac{\beta}{\alpha}$ is......

A. $x^2 + 5x + 6 = 0$

B. $x^2 + 5x - 6 = 0$

C. $6x^2 - 13x + 6 = 0$

D. $6x^2 + 13x + 6 = 0$

Answer: C

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14. $\sqrt{a + \sqrt{a + \sqrt{a + ...\infty}}} = ...$.

A. a

B. $\dfrac{1+\sqrt{4a+1}}{2}$

C. $\dfrac{1-\sqrt{4a}}{2}$

D. None

Answer: D

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15. If the sum of a number and its reciprocal is $\dfrac{17}{4}$, then that number is..........

A. $4 \text{ or } \dfrac{1}{4}$

B. $4 \text{ or } \dfrac{-1}{4}$

C. $-4 \text{ or } \dfrac{1}{4}$

D. None

Answer: A

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16. IF 3 is one root of $x^2 + kx - 24 = 0$ then k=..........

A. 3

B. 4

C. 5

D. 6

Answer: C

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17. IF the roots of $kx^2 + x(k-1) + (k-1) = 0$ are equal, then k=..........

A. $1 \text{ or } \frac{1}{3}$

B. $1 \text{ or } \frac{-1}{3}$

C. $-1 \text{ or } \frac{1}{3}$

D. $-1 \text{ or } \frac{-1}{3}$

Answer: B

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18. The roots of $2x^2 - 3x + 5 = 0$ are

A. Rational are equal

B. Rational are not equal

C. Irrational

D. Not real

Answer: D

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19. The condition that the roots of $ax^2 + bx + c = 0$ may be in the ratio m:n is.............

A. $mnb^2 = ac(m+n)^2$

B. $mnc^2 = ab(m+n)^2$

C. $mnb^2 = 2ac(m+n)^2$

D. $mnc^2 = 2ab(m+n)^2$

Answer: A

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20. The equation whose roots are greater by 1 than those of $2x^2 + 3x + 5 = 0$.

A. $2x^2 - x + 4 = 0$

B. $x^2 + 5x + 6 = 0$

C. $2x^2 + 4x + 7 = 0$

D. $3x^2 + 4x + 6 = 0$

Answer: A

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EXAMPLES

1. Check whether the following equations are quadratic or not.

$x^2 - 6x - 4 = 0$

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2. Check whether the following equations are quadratic or not.

$x^3 - 6x^2 + 2x - 1 = 0$

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3. Check whether the following equations are quadratic or not.

$7x = 2x^2$

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4. Check whether the following equations are quadratic or not.

$$x^2 + \frac{1}{x^2} = 2$$

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5. Check whether the following equations are quadratic or not.

$$(2x + 1)(3x + 1) = 6(x - 1)(x - 2)$$

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6. Check whether the following equations are quadratic or not.

$$3y^2 = 192$$

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7. Represent the following situations mathematically :

Raju and Rajender together have 45 marbles. Both of then lost 5 marbles each. And the product of the number of marbles now they have is 124.

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8. Represent the following situations mathematically

The hypotenuse of a right triangle is 25cm. We know that the difference in lengths of the other two sides is 5 cm. We would like to find out the length of the two sides.

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9. Check whether the following are quadratic equations:

$(x-2)^2+1=2x-3$

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10. Check whether the following are quadratic equations:

$x(x+1)+8=(x+2)(x-2)$

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11. Check whether the following are quadratic equations:

$x(2x+3)=x^2+1$

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12. Check whether the following are quadratic equations:

$(x+2)^3=x^3-4$

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13. Find the roots of the equation $2x^2 - 5x + 3 = 0$ by factorisation.

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14. Find the roots of the quadratic equation $x - \frac{1}{3x} = \frac{1}{6}$

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15. Find the width of the space for spectators

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16. Find the roots of the equation $5x^2 - 6x - 2 = 0$ by the method of completing the square.

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17. Find the roots of $4x^2 + 3x + 5 = 0$ by the method of completing the square.

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18. Find two consecutive odd positive integers, sum of whose squares is 290.

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19. A rectangular park is to be designed whose breadth is 3 m less than its length. Its area is to be 4 square metres more than area of a park that has already been made in the shape of an isosceles triangle with its base as the breadth of the reatangular park and of altitude 12m. Find its length and breadth.

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20. Find the roots of the following quadratic equations, if they exist.

$x^2 + 4x + 5 = 0$

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21. Find the roots of the following quadratic equations, if they exist.

$2x^2 - 2\sqrt{2}x + 1 = 0$

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22. Find the roots of the following equations:

$$x + \frac{1}{x} = 3, x \neq 0$$

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23. Find the roots of the following equations:

$$\frac{1}{x} - \frac{1}{x-2} = 3, x \neq 0, 2$$

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24. A motor boat whose speed is 18km/h in still water. It takes 1 hour more to go 24km upstream than to return downstream to the same spot. Find the speed of the stream.

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25. Find the discriminant of the quadratic equation $2x^2 - 4x + 3 = 0$and hence find the nature of its roots.

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26. A pole has to be erected at a point on the boundary of a circular park of diameter 13 metres in such a way that the differences opposite fixed gates A and B on the boundary is 7 metres. Is it possible to do so ? If yes, at what distances from the two gates should the pole be erected ?

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27. Find the discriminant of the equation $3x^2 - 2x + \frac{1}{3} = 0$ and hence find the nature of roots. Find them, If they are real.

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DO THIS

1. Solve the equations by completing the square.

$x^2 - 10x + 9 = 0$

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2. Solve the equations by completing the square

$x^2 - 5x + 5 = 0$

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3. Solve the equations by completing the square

$x^2 + 7x - 6 = 0$

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TRY THIS

1. Check whether the following equations are quadratic or not .

(i) $x^2-6x-4=0$

$(ii)x^3-6x^2+2x-1=0$

(iii) $7x=2x^2$

(iv) $x^2+\frac{1}{x^2}=2$

(v) $(2x+1)(3x+1)=6(x-1)(x-2)$

(vi) $3y^2=192$

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2. Verify that 1 and $\frac{3}{2}$ are the roots of the equation $2x^2-5x+3=0.$

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3. Explain the benefits of evaluating the discriminant of a quadratic equation before attempting to solve it. What does its value signifies? (AS_2, AS_1)

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4. Write three quadratic equations one having two distinct real solutions, one having no real solution and one having exactly one real solution.

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THINK & DISCUSS

1. We have three methods to solve a quadratic equations. Among these three, which metod would you like to use? Why?

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EXERCISE 5.1

1. Check whether the following are quadratic equations:

$$(x+1)^2 = 2(x-3)$$

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2. Check whether the following are quadratic equations:

$$x^2 - 2x = (-2)(3-x)$$

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3. Check whether the following are quadratic equations:

$$(x-2)(x+1)=(x-1)(x+3)$$

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4. Check whether the following are quadratic equations:

$$(x-3)(2x+1)=x(x+5)$$

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5. Check whether the following are quadratic equations:

$$(2x-1)(x-3)=(x+5)(x-1)$$

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6. Check whether the following are quadratic equations:

$$x^2 + 3x + 1 = (x - 2)^2$$

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7. Check whether the following are quadratic equations:

$$(x + 2)^3 = 2x\left(x^2 - 1\right)$$

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8. Check whether the following are quadratic equations:

$$x^3 - 4x^2 - x + 1 = (x - 2)^3$$

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9. The area of a rectangular plot is $528m^2$. The length of the plot is one more than twice its breadth. The length and breadth of the plot are

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10. The product of two consecutive positive integers is 306. We need to find the integers.

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11. Rohan's mother is 26 years older than him. The product of their ages after 3 years will be 360. Then write the required quadratic equation to find Rohan's present age.

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12. A train travels a distance of 480 km at a uniform speed. If the speed had been 8km/h less, then it would have taken 3 hours more to cover the same distance. We need to find the speed of the train.

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EXERCISE 5.2

1. Find the roots of the following quadratic equations by factorisation.

$x^2 - 3x - 10 = 0$

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2. Find the roots of the following quadratic equations by factorisation

$2x^2 + x - 6 = 0$

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3. Find the roots of the following quadratic equations by factorisation

$\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

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4. Find the roots of the following quadratic equations by factorisation

$2x^2 - x + \frac{1}{8} = 0$

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5. Find the roots of the following quadratic equations by factorisation

$100x^2 - 20x + 1 = 0$

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6. Find the roots of the following quadratic equations by factorisation

$x(x + 4) = 12$

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7. Find the roots of the following quadratic equations by factorisation

$3x^2 - 5x + 2 = 0$

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8. Find the roots of the following quadratic equations by factorisation

$$x - \frac{3}{x} = 2$$

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9. Find the roots of the following quadratic equations by factorisation

$$3(x-4)^2 - 5(x-4) = 12$$

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10. Find two numbers whose sum is 27 and product is 182.

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11. Find two consecutive positive integers, sum of whose squares is 613.

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12. The altitude of a right triangle is 7cm less then its base. If the hypotenuse is 13cm, find the other two sides.

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13. A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article (in rupees) was 3 more than twice the number of articles produced on that day. If the total cost of production on that day was Rs. 90, find the number of articles produced and the cost of each article.

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14. Find the dimensions of a rectangle whose perimeter is 28 meters. And whose area is 40 square meters.

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15. The base of a triangle is 4cm longer than its altitude. If the area of the triangle is 48 sq.cm, then find its base and altitude.

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16. Two trains leave a railway station at the same time. The first train travels towards west and the second train towards north. The first train travels 5 km/hr faster then the second train. If after two hours they are 50 km. apart, find the average speed of each train.

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17. In a class of 60 students, each boy contributed rupees equal to the number of girls and each girl contributed rupees equal to the number of boys. If the total money then collected was Rs. 1600, how many boys are there in the class?

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18. A motor boat heads upstream a distance of 24km on a river whose current is running at 3km per hours. Assuming that the motor boat maintained a constant speed, what was its speed ?

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EXERCISE 5.3

1. Find the roots of the following quadratic equations, if they exist, by the method of completing the square:

$2x^2 + x - 4 = 0$

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2. Find the roots of the following quadratic equations, if they exist, by the method of completing the square:

$4x^2 + 4\sqrt{3}x + 3 = 0$

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3. Find the roots of the following quadratic equations, if they exist, by the method of completing the square:

$5x^2 - 7x - 6 = 0$

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4. Find the roots of the following quadratic equations, if they exist, by the method of completing the square:

$x^2 + 5 = -6x$

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5. Find the roots of the quadratic equation by applying the quadratic formula.

$2x^2 + x - 4 = 0$

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6. Find the roots of the quadratic equation by applying the quadratic formula.

$4x^2 + 4\sqrt{3}x + 3 = 0$

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7. Find the roots of the quadratic equation by applying the quadratic formula.

$5x^2 - 7x - 6 = 0$

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8. Find the roots of the quadratic equation by applying the quadratic formula.

$x^2 + 5 = -6x$

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9. Find the roots of the following equations :

$$x - \frac{1}{x} = 3, x \neq 0$$

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10. Find the roots of the following equations :

$$\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}, x \neq -4, 7$$

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11. The sum of the reciprocals of Rehman ages, (in years) 3 years ago and 5 year from now is $\frac{1}{3}$ Find his present age.

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12. In a class test, the sum of Moulika's marks in Mathematics and English is 30. If she got 2 marks more in Mathematics and 3 marks less in English, the product of her marks would have been 210. Find her marks in the two subjects.

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13. The diagonal of a rectangular field is 60 metres more than the shorter side. If the longer side is 30 metres more then the shorter side, find the sides of the field.

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14. The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number.Find the two numbers.

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15. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, if would have taken 1 hour less for the same journey. Find the speed of the train.

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16. Two water taps together can fill a tank in $9\frac{3}{8}$ hours. The tap of larger diameter takes 10 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.

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17. An express train takes 1 hour less than a passenger train to travel 132 km between Mysore and Bangalore (without taking into consideration the time they stop at intermediate stations). If the average speed of the express train is 11 km/hr more then that of the passenger train, find the average speed of the two trains.

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18. Sum of the areas of two squares is 468 m^2 If the difference of their perimeters is 24m, find the sides of the two squares.

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19. If a polygon of 'n' sides has $\frac{1}{2}n(n-3)$ diagonals. How many sides will a polygon having 65 diagonals ? Is there a polygon with 50 diagonals?

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EXERCISE 5.4

1. Find the nature of the roots of the following quadratic equations. If real roots exist, find them.

$2x^2 - 3x + 5 = 0$

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2. Find the nature of the roots of the following quadratic equations. If real roots exist, find them.

$3x^2 - 4\sqrt{3}x + 4 = 0$

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3. Find the nature of the roots of the following quadratic equations. If real roots exist, find them.

$2x^2 - 6x + 3 = 0$

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4. Find the values of k for each of the following quadratic equations so that they have two equal roots.

$2x^2 + kx + 3 = 0$

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5. Find the values of k for each of the following quadratic equations so that they have two equal roots.

$\therefore k = 6$

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6. Is it possible to desigh a rectangular mango grove whose length is twice its breadth, and the area is 800 m^2 ? If so find its length and breadth.

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7. The sum of the ages of two friends is 20 years. Four years ago,the product of their ages in years was 48. Is the above situation possible ? If so, determine their present ages

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8. Is it possible to desigh a rectangular park of perimeter 80m and area $400m^2$? If so, find its length and breadth.

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OPTIONAL EXERCISE

1. Some points are plotted on a plane. Each point is joined with all remaining points by line segments. Find the number of points if the number of line segments are 15.

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2. A two digit number is such that the product of its digits, is 8. When 18 is added to the number, they interchange their places. Determine the number.

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3. A piece of wire 8m in length is cut into two pieces and each piece is bent into a squares. Where should the cut in the wire be made if the sum of the areas of these squares is to be 2 m^2?

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4. Vinay and Praveen working together can paint the exterior of a house in 6 days. Vinay by himself can complete the job in 5 days less than praveen. How long will it take Vinay to complete the job by himself?

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5. Show that the sum of roots of a quadratic equation $ax^2 + bx + c = 0 \text{is} \frac{-b}{a}$

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6. The product of roots of quadratic equation $ax^2 + bx + c = 0$ is

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7. The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is $2\frac{16}{21}$, find the fraction.

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8. A ball is thrown vertically upwards from the top of a building of height 29.4m and with an initial velocity 24.5 m/sec. If the height H of the ball from the ground level is given by $H = 29.4 + 24.5t - 4.9t^2$, then find the time taken by the ball to reach the ground.

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OBSERVATION MATERIAL TO SOLVE VARIOUS QUESTIONS GIVEN IN THE PUBLIC EXAMINATION

1. $If b^2 - 4ac \geq 0$ then write the roots of a quadratic equation $ax^2 + bx + c = 0$

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2. Find a quadratic polynomial with zeroes -2 and $\frac{1}{3}$.

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3. Two angles are complementary and one angle is 18° more than the other. Then find angles.

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4. $Ifb^2 - 4ac > 0 \text{in} ax^2 + bx + c = 0$, then what can you say about roots of the equation ? $(a \neq 0)$

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5. Find the value of k, if 2 is one of the roots of the quadratic equation

$x^2 - kx + 6 = 0$

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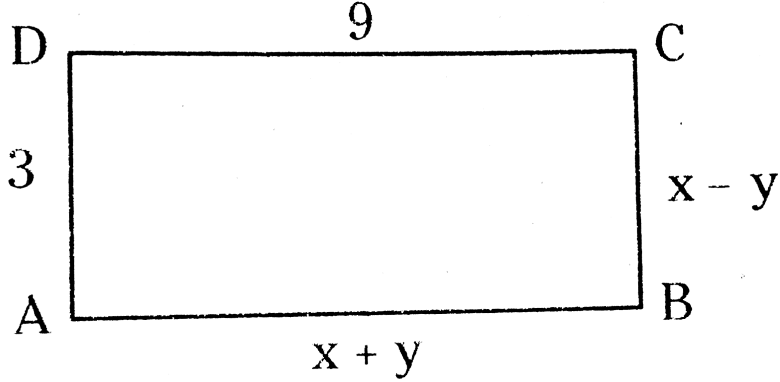
6. In a rectangle ABCD, AB = x + y, BC = x - y, CD = 9 and AD = 3. Find the values of x and y.



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7. Write the nature of roots of the quadratic equation $2x^2 - 5x + 6 = 0$

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8. Write the nature of the roots of the quadratic equation $x^2 - 8x + 16 = 0$

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9. Find sum and product of roots of the Quadratic equation

$x^2 4\sqrt{3}x + 9 = 0$

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10. Find the roots of $x + \frac{6}{x} = 7, x \neq 0$

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11. Length of a rectangle is 2 units greater than its breadth. If the area of the rectangle is 120 sq. units then find its length.

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12. $If 9x^2 + kx + 1 = 0$ has equal roots, find the value of k.

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13. If the measure of angles of a triangle are x°, y° and 40° and difference between the two measures of angles x° and $y^{\circ} is 30^{\circ}$ then find the values of x° and y°

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14. The sum of a number and its reciprocal is $\frac{10}{3}$ Find the number.

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15. Is it possible to design a rectangular genden, whose length is twice of its breadth and area is $200m^2$? If so, find its length and breadth.

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16. If the equation $kx^2 - 2kx + 6 = 0$ has equal roots, then find the value of k.

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17. Find the zeroes of the quadratic polynomial $x^2 - x - 30$ and verify the relation between the zeroes and its co-efficients.

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18. Find the roots of the following quadratic equations, if they exist, by the method of completing the square:

$5x^2 - 7x - 6 = 0$

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19. Sum of the squares of two consecutive positive even integers is 100 , find those numbers by using quadratic equations.

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20. The perimeter of a right- angled triangle is 60 cm. and its hypotenuse is 25 cm. Then find the remaining two sides.

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21. If - 4 is common root for the quadratic equations $2x^2 + px + 8 = 0$ and $p(x^2 + x) + k = 0$ then find the value of 'k'.

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22. Sum of squares of two consecutive even numbers is 580. Find the numbers by writing a sultable Quadratle equation.

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OBSERVATION BITS TO SOLVE VARIOUS BITS GIVEN IN THE PUBLIC EXAMINATION

1. The general form of a quadratic equation in variable x is......

A. $ax^2 + bx + c = 0 (a \neq 0)$

B. $ax + bx^2 + c = 0 (b \neq 0)$

C. $ax^2 bx = 0 (a \neq 0)$

D. $a^2 x + bx + c = 0 (b \neq 0)$

Answer: A

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2. The possible number of roots to a quadratic equation are....

A. At a maximum of 3

B. At a maximum of 2

C. Infinite

D. At a maximum of 5

Answer: B

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3. If the roots of a quadratic equation $px^2 + qx + r = 0$ are imaginary then......

A. $q^2 > 4pr$

B. $q^2 < 4pr$

C. $q^2 = 4pr$

D. $p = q + r$

Answer: B

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4. The discriminant of quadratic equation $2x^2 + x - 4 = 0$ is...

A. 35

B. 36

C. 33

D. 38

Answer: C

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5. The product of roots of quadratic equation $ax^2 + bx + c = 0$ is

A. $\frac{c}{a}$

B. $\frac{-b}{a}$

C. $\frac{-c}{a}$

D. $\frac{b}{c}$

Answer: A

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6. For what positive value of x the quadratic equation $4x^2 - 9 = 0$

A. $\frac{2}{3}$

B. $\frac{-2}{3}$

C. $\frac{-3}{2}$

D. $\frac{3}{2}$

Answer: D

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7. Two angles are complementary. If the larger angle is twice the measure of a smaller angle, then smaller is...

A. 30°

B. 45°

C. 60°

D. 15°

Answer: A

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8. If one root of $2x^2 + kx - 6 \text{ is } 2, \text{ then } k = \dots.$

A. 3

B. 4

C. 1

D. -1

Answer: D

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9. If the roots of $x^2 + 6x + 5 = 0 \text{ are } \alpha \text{ and } \beta \text{ then } \alpha + \beta =$

A. 5

B. -6

C. 6

D. -1

Answer: B

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10. A quadratic equation, whose roots are

$2 + \sqrt{3} \text{ and } 2 - \sqrt{3} =$

A. $x^2 - x - 4 = 0$

B. $x^2 - 4x + 1 = 0$

C. $x^2 + 4x + 3 = 0$

D. $x^2 + x - 3 = 0$

Answer: B

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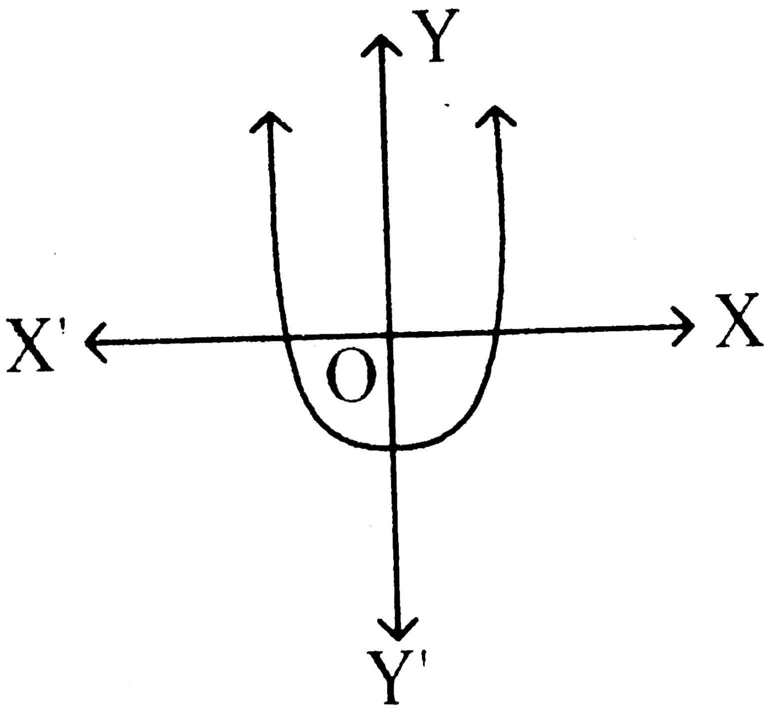
11. The adjacent diagram indicates.....



A. $b^2 - 4ac > 0$

B. $b^2 - 4ac = 0$

C. $b^2 - 4ac < 0$

D. None of the given

Answer: A

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12. $If\alpha, \beta \text{are the roots of} x^2 - 10x + 9 = 0, \text{then} |\alpha - \beta| =$

A. 9

B. 8

C. -10

D. 10

Answer: B

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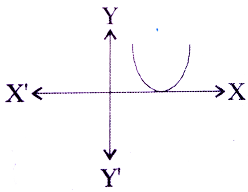
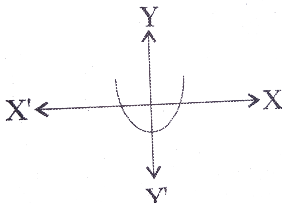
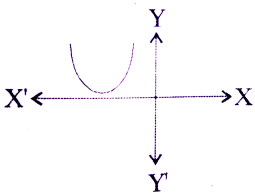
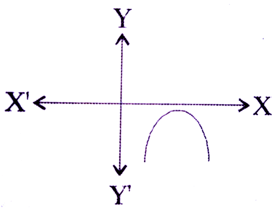
13. Which one of the following figures shows the quadratic equation $ax^2 + bx + c = 0 (a \neq 0)$ having distinct roots?

A. 

B. 

C. 

D. 

Answer: B

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14. If 1 is a common root of $ax^2 + ax + 2 = 0$ and $x^2 + x + b = 0 \text{then} a. b =$

A. 2

B. -2

C. 3

D. -3

Answer: A

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15. The number of diagonals for an n sided polygon is

A. $\dfrac{n(n+1)}{2}$

B. $\frac{n(n-1)}{2}$

C. $\frac{n(n-3)}{2}$

D. $\frac{n(n+3)}{2}$

Answer: C

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16. A quadratic equation $ax^2 + bx + c = 0$has two distinct real roots, if....

A. $b^2 - 4ac > 0$

B. $b^2 - 4ac < 0$

C. $b^2 - 4ac = 0$

D. None of the given

Answer: A

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17. The discriminant of the quadratic equation $px^2 + qx + r = 0$ is....

A. $p^2 - 4qr$

B. $q^2 - 4pr$

C. $q^2 + 4pr$

D. $r^2 - 4pq$

Answer: B

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18. The discriminant of $6x^2 - 5x + 1 = 0 \text{is}$

A. 1

B. 2

C. 6

D. $-\frac{5}{6}$

Answer: A

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19. One root of the equation $x - \frac{3}{x} = 2$ is..........

A. 1

B. 2

C. 3

D. 4

Answer: C

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20. The quadratic polynomial, whose zeroes are $\sqrt{2}$ and $-\sqrt{2}$ is

A. $x^2 - 2$

B. $x^2 + 2$

C. $x^2 + \sqrt{2}$

D. $x - 2$

Answer: A

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21. If the equation $x^2 + 5x + K = 0$ has real and distinct roots, then....

A. $K = 6$

B. $K < 6.25$

C. $K > 6$

D. $K > 25$

Answer: B

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22. The quadratic polynomial, whose zeros are 2 and 3, is.....

A. $x^2 - 5x - 6$

B. $x^2 + 5x - 6$

C. $x^2 - 5x + 6$

D. $x^2 + 5x + 6$

Answer: C

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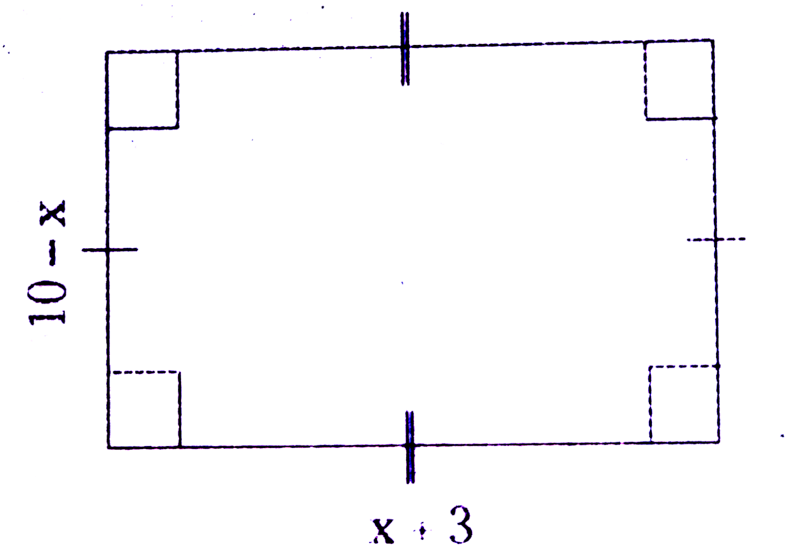
23. Observe the given rectangular figure, then its area in polynomial function is ....



A. $A(x) = x^2 + 7x + 30$

B. $A(x) = -x^2 + 7x + 30$

C. $A(x) = x^2 - 7x + 30$

D. $A(x) = -x^2 - 7x + 30$

Answer: B

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24. Which of the following is a quadratic equation?

A. $x^3 - 6x^2 + 2x - 1 = 0$

B. $x^2 + \frac{1}{x^2} = 2$

C. $x + \frac{1}{x} = 3$

D. $(x+1)(x+2)(x+3) = 0$

Answer: C

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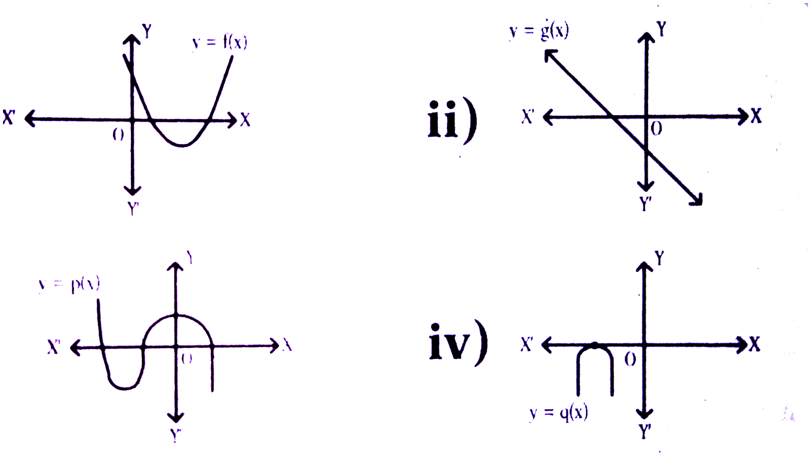
25. Observe the following graphs.



Which as them are the graphs of quadratic polynomials?

A. (i) , (ii) and (iii)

B. (i) and (iii)

C. (i) and (iv)

D. (i) , (iii) and (iv)

Answer: C

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26. Which of the following quadratle. Equations the roots are equal?

A. $x^2 - 5 = 0$

B. $x^2 - 10x + 25 = 0$

C. $x^2 + 5x + 6 = 0$

D. $x^2 - 1 = 0$

Answer: B

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27. The quadratic polynomial having $\frac{1}{3}$ and $\frac{1}{2}$ as its zeroes, is.....

A. $x^2 + \frac{5x + 1}{6}$

B. $-6x^2 - 5x + 1$

C. $x^2 - \dfrac{5x - 1}{6}$

D. $6x^2 - 5x - 1$

Answer: C

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28. $Ifx^2 - px + q = 0(p, q \in R \text{ and } p \neq 0, q \neq 0)$ has distinct real roots. Then...

A. $p^2 < 4q$

B. $p^2 > 4q$

C. $p^2 = 4q$

D. $p^2 + 4q = 0$

Answer: B

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29. In a quadratic equation $ax^2 + bx + c = 0 \text{if} b^2 - 4ac > 0$ then their roots are ....

A. real and distinct

B. real and equal

C. imaginary

D. none

Answer: A

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30. If a number is 132 smaller than its square, then the number is

A. 11

B. 8

C. 9

D. 12

Answer: D

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CREATIVE BITS FOR CCE MODEL EXAMINATION

1. One of the roots of the Q.E. $6x^2 - x - 2 = 0$ is

A. $\frac{1}{3}$

B. $-\frac{1}{3}$

C. $-\frac{2}{3}$

D. $\frac{2}{5}$

Answer: B

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2. If the sum of the squares of two consecutive odd numbers is 74, then the smaller number is

A. 11

B. 3

C. 7

D. 5

Answer: D

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3. The roots of the equation $4x^2 + 4\sqrt{3}x + 3 = 0$ are

A. $\frac{\sqrt{3}}{2}$

B. $\frac{-\sqrt{3}}{2}$

C. -4

D. -2

Answer: B

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4. The sum of a number and its reciprocal is $\frac{50}{7}$,then the number is

A. $\frac{1}{7}$

B. 5

C. $\frac{2}{7}$

D. $\frac{3}{7}$

Answer: A

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5. The roots of the equation $3x^2 - 2\sqrt{6}x + 2 = 0$ are

A. $\frac{2}{\sqrt{3}}, \frac{-2}{\sqrt{3}}$

B. $\frac{1}{\sqrt{3}}, \frac{-1}{\sqrt{3}}$

C. $\sqrt{\frac{2}{3}}, \sqrt{\frac{2}{3}}$

D. $\frac{1}{\sqrt{3}}, \frac{5}{\sqrt{3}}$

Answer: C

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6. $If x^2 - 2x + 1 = 0 \text{then} x + \frac{1}{x} =$

A. 0

B. 2

C. 1

D. None

Answer: B

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7. The roots of the Q.E. $\sqrt{3}x^2 - 2x - \sqrt{3} = 0 \text{are}$

A. real and distinct

B. real and equal

C. Not real

D. Can't be determined

Answer: A

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8. One solution of the Q.E. $2x^2 - 5x - 3 = 0$ is

A. x = 2

B. $x = -1$

C. $x = -3$

D. $x = 3$

Answer: D

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9. $If 5x^2 - kx + 11 = 0$ has a root x = 3, then k =

A. $\frac{16}{3}$

B. $\frac{56}{3}$

C. $\frac{-17}{3}$

D. 15

Answer: B

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10. The sum of the roots of the equation $3x^2 - 7x + 11 = 0$

A. $\frac{11}{3}$

B. $\frac{-7}{3}$

C. $\frac{7}{3}$

D. $\frac{3}{7}$

Answer: C

Watch Video Solution

11. The positive root of $\sqrt{3x^2+6}=9$ is

A. 3

B. 5

C. 4

D. $\frac{2}{5}$

Answer: B

Watch Video Solution

12. The value of p for which $4x^2 - 2px + 7 = 0$ has a real root is

A. $p > 2\sqrt{7}$

B. $p > \sqrt{7}$

C. $p > \sqrt{5}$

D. $p > \sqrt{3}$

Answer: A

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13. The roots of $5x^2 - x + 1 = 0$ are

A. Real and equal

B. Real and unequal

C. imaginary

D. None

Answer: C

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14. Which of the following Q.E has real and equal roots?

A. $x^2 - 4x + 4 = 0$

B. $2x^2 - 4x + 3 = 0$

C. $3x^2 - 5x + 2 = 0$

D. $x^2 - 2\sqrt{2}x - 6 = 0$

Answer: A

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15. The standard form of a Q.E. is

A. $ax + b = 0$

B. $ax^2 + bx + c = 0, a \neq 0$

C. $ax^3 + bx^2 + cx + d = 0$

D. $a^2x + b^2y^2 = c^2$

Answer: B

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16. The roots of the Q.E. $\left(\sqrt{5}x - 3\right)\left(\sqrt{5}x - 3\right) = 0 \text{are}$

A. $\frac{3}{\sqrt{5}}, \frac{3}{\sqrt{5}}$

B. $\frac{-3}{\sqrt{5}}, \frac{-3}{\sqrt{5}}$

C. $\frac{3}{\sqrt{5}}, \frac{-3}{\sqrt{5}}$

D. $\frac{\sqrt{3}}{\sqrt{5}}, \frac{\sqrt{3}}{\sqrt{5}}$

Answer: A

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17. The roots of the Q.E. $(7x-1)(2x+3)=0$ are

A. 1,3

B. $\frac{1}{7}, \frac{3}{2}$

C. $\frac{1}{7}, \frac{-3}{2}$

D. $\frac{-1}{7}, \frac{-3}{2}$

Answer: C

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18. Which of thr following is a Q.E.

A. $(x+1)^2 = 3(x+7)$

B. $(x-1)(x+3) = (x-2)(x+1)$

C. $x^2 + 5x - 7 = (x-4)^2$

D. $x^3 - 9 = 0$

Answer: A

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19. The roots of the Q.E.

$\frac{9}{x^2 - 27} = \frac{25}{x^2 - 11}$ are

A. ± 11

B. ± 3

C. ± 9

D. ± 6

Answer: D

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20. The roots of the QE

$(3x+4)^2 - 49 = 0$ are

A. $1, \dfrac{-11}{3}$

B. $\dfrac{1}{3}, \dfrac{11}{3}$

C. $\dfrac{-1}{3}, \dfrac{-11}{3}$

D. $1, \ -11$

Answer: A

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21. The sum of a number and its recip- rocal is $\frac{5}{2}$ then the number is

A. $2 \text{ or } \frac{1}{3}$

B. $3 \text{ or } \frac{1}{2}$

C. $2 \text{ or } \frac{1}{2}$

D. $5 \text{ and } \frac{1}{5}$

Answer: C

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22. The roots of the Q.E. $\left(x - \frac{1}{3}\right)^2 = 9$

A. 10,8

B. $\frac{-10}{3}, \frac{8}{3}$

C. $\frac{10}{3}, \frac{-8}{3}$

D. $(-3, 3)$

Answer: C

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23. Product of the roots of the Q.E.

$3x^2 - 6x + 11 = 0 \text{is}$

A. 2

B. $\frac{-11}{3}$

C. $\frac{-11}{6}$

D. $\frac{11}{3}$

Answer: D

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24. The Q.E. whose roots are -2,-3 is

A. $x^2 - 5x + 6 = 0$

B. $x^2 + 5x + 6 = 0$

C. $x^2 - 5x - 6 = 0$

D. $x^2 + 5x - 6 = 0$

Answer: B

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25. If the equation $x^2 - kx + 1 = 0$ has equal roots. Then

A. k = 1

B. k = -1

C. k = 2

D. k = -4

Answer: C

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26. If (x - 3)(x + 3) = 16 then the value of x is

A. ± 4

B. ± 3

C. ± 6

D. ± 5

Answer: D

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27. If the sum of the roots of the Q.E. $3x^2 + (2k+1)x - (k+5) = 0$ is equal to the product of the roots, then the value of k is

A. 3

B. 4

C. 2

D. 6

Answer: B

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28. The Q.E. whose one root is $2 - \sqrt{3}$ is

A. $x^2 - 4x + 1 = 0$

B. $x^2 + 4x - 1 = 0$

C. $x^2 - 4x - 1 = 0$

D. $x^2 - 2x - 3 = 0$

Answer: A

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29. Form a quadratic equation whose roots are k and $\frac{1}{k}$

A. $x^2 + \left(k + \frac{1}{k}\right)x + 1 = 0$

B. $xk^2 - kx + 1 = 0$

C. $x^2 - (k + k)x + 1 = 0$

D. $x^2 - \left(k + \frac{1}{k}\right)x + 1 = 0$

Answer: D

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30. The roots of a quadratic equation $\frac{x}{p} = \frac{p}{x}$ are

A. $\pm p$

B. p, 2p

C. $-p, 2p$

D. $-p, \ -2p$

Answer: A

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31. The roots of a quadratic equation

$ax^2 + bx + c = 0$is

A. $\dfrac{-b + \sqrt{b^2 - 4ac}}{ac}$

B. $\dfrac{-b - \sqrt{b^2 - 4}}{3}$

C. $\dfrac{-b - \sqrt{b - 4ac}}{2}$

D. $\dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Answer: D

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32. The product of the roots of the quadratic equation

$\sqrt{2}x^2 - 3x + 5\sqrt{2} = 0$

A. $\dfrac{-5}{3}$

B. $\sqrt{2}$

C. 5

D. 3

Answer: C

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33. In the above problem sum of the roots is...

A. $\frac{3}{\sqrt{2}}$

B. $-\frac{3}{\sqrt{2}}$

C. 3

D. 5

Answer: A

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34. The sum of the roots of the quadratic equation $5x^2 + 4\sqrt{3}x - 11 = 0$ is

A. $\frac{-11}{5}$

B. $\frac{11}{4}$

C. $\frac{-4}{3}$

D. $\frac{-4}{5}\sqrt{3}$

Answer: D

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35. The product of zeroes in the above equation is....

A. $\frac{5}{-11}$

B. $\frac{11}{5}$

C. $\frac{-11}{5}$

D. $\frac{1}{5}$

Answer: C

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36. The quadratic equation whose roots are -3 and -4 is ...

A. $7x^2 + x + 1 = 0$

B. $x^2 + 7x + 12 = 0$

C. $x^2 - 3x + 1 = 0$

D. none

Answer: B

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37. If one root of a quadratic equation is $7-\sqrt{3}$ then the quadratic equation is ....

A. $x^2-7x+3=0$

B. $x^2-4x+6=0$

C. $x^2-7x+1=0$

D. $x^2-14x+46=0$

Answer: D

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38. The nature of the roots of a quadratic equation $4x^2+5x+1=0$ is.....

A. real and distinct

B. real and equal

C. imaginary

D. none

Answer: A

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39. The nature of the roots of quadratic equation $3x^2 + x + 8 = 0$ is...

A. real and distinct

B. real and equal

C. imaginary

D. none

Answer: C

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40. The nature of the roots of a quadratic equation $4x^2 - 12x + 9 = 0$ is....

A. Real and equal

B. real and distinct

C. imaginary

D. none

Answer: A

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41. The roots of a quadratic equation $\left(\sqrt{2}x+3\right)\left(5x-\sqrt{3}\right)=0$ are.....

A. $\frac{1}{3}, \frac{1}{\sqrt{2}}$

B. $\frac{1}{2}, \frac{3}{\sqrt{5}}$

C. $\frac{-3}{\sqrt{2}}, \frac{1}{5}$

D. $\frac{-3}{\sqrt{2}}, \frac{\sqrt{3}}{5}$

Answer: D

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42. The roots of the quadratic equation $\frac{x^2-8}{x^2+20}=\frac{1}{2}$ are...

A. ± 2

B. ± 6

C. ± 13

D. ± 7

Answer: B

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43. The discriminant of $5x^2 - 3x - 2 = 0$ is...

A. 49

B. 89

C. 20

D. none

Answer: A

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44. $Ifb^2 - 4ac < 0$ then the roots of the quadratic equation are...

A. distinct

B. equal

C. imaginary

D. none

Answer: C

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45. $\text{If} b^2 - 4ac = 0$ then the roots of the quadratic equation are...

A. real and distinct

B. real and equal

C. imaginary

D. none

Answer: B

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46. If $b^2 - 4ac > 0$ then the roots of the quadratic equation are...

A. real and distinct

B. real and equal

C. imaginary

D. none

Answer: A

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47. If the roots of a quadratic equation $ax^2 + bx + c = 0$ are real and equal then b^2 =...

A. 4ab

B. 4ac

C. $a\frac{c}{4}$

D. a^2c^2

Answer: B

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48. Find the nature of the roots of $4x^2 - 20x + 25 = 0$

A. Real and equal

B. imaginary

C. real and distinct

D. none

Answer: A

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49. The nature of roots of $3x^2 + 6x - 2 = 0$ is....

A. real and distinct

B. real and equal

C. complex

D. none

Answer: A

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50. The roots of $7x^2 + 3x + 8 = 0$ are...

A. real

B. not real

C. real and equal

D. none

Answer: B

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51. Sum of the roots of $ax^2 + bx + c = 0$ is..

A. $\frac{c}{a}$

B. $\frac{b}{a}$

C. $\frac{a}{b}$

D. none

Answer: D

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52. Product of the roots of $ax^2 + bx + c = 0$ is...

A. $\frac{c}{a}$

B. $\frac{-b}{a}$

C. $\frac{-c}{a}$

D. none

Answer: A

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53. $3x^2 + (-kx) + 8 = 0$ has real roots if ...

A. $k < 4\sqrt{6}$

B. $k > 4\sqrt{6}$

C. k = 6

D. k = 0

Answer: B

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54. $4x^2 + kx - 2 = 0$ has no real roots if.....

A. $k > -\sqrt{32}$

B. k = 10

C. $k < -\sqrt{32}$

D. none

Answer: C

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55. The quadratic equation whose roots are 2,3 is...

A. $x^2 - 5x + 1 = 0$

B. $x^2 - 5x - 6 = 0$

C. $x^2 - 3x + 1 = 0$

D. $x^2 - 5x + 6 = 0$

Answer: D

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56. The quadratic equation whose roots are -2 and -3 is...

A. $x^2 + 6x + 1 = 0$

B. $x^2 + 5x + 6 = 0$

C. $x^2 - 5x + 1 = 0$

D. none

Answer: B

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57. If $x^2 - 8kx + 16 = 0$ has equal roots then ....

A. $k = \pm\sqrt{2}$

B. $k = \pm 7$

C. $k = \pm 1$

D. none

Answer: C

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58. $\frac{x}{x-y} - \frac{y}{x+y} = ..$

A. $\frac{x^2+y^2}{x^2-y^2}$

B. $\frac{x^2+y^2}{x+y}$

C. $\frac{x^2y^2}{x+y}$

D. none

Answer: A

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59. $\dfrac{2a^2+a-1}{a+1}+\dfrac{3a^2+5a+2}{3a+2}+\dfrac{4-a^2}{a+2}=..$

A. $\dfrac{a}{2}+2$

B. $\dfrac{a+1}{2}$

C. $2(a+1)$

D. none

Answer: C

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60. $\dfrac{1}{a+3}+\dfrac{1}{a-3}+\dfrac{6}{9-a^2}=..$

A. $\dfrac{1}{a+3}$

B. $\dfrac{3}{a+2}$

C. $\dfrac{2}{a+1}$

D. $\dfrac{2}{a+3}$

Answer: D

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61. $\dfrac{1-\frac{1}{1+x}}{\frac{1}{1+x}} = ..$

A. 1

B. x^2

C. x

D. 0

Answer: C

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62. $\left(x+\frac{1}{x}\right)^2-\left(y+\frac{1}{y}\right)^2-\left(xy-\frac{1}{xy}\right).\left(\frac{x}{y}-\frac{y}{x}\right)$=......

A. 0

B. 1

C. xy

D. $\frac{1}{xy}$

Answer: A

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63. Sum of the roots of $bx^2+ax+c=0$ is

A. $\frac{-b}{2}$

B. $\frac{c}{a}$

C. $\frac{a}{b}$

D. $\frac{-a}{b}$

Answer: D

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64. $(x-\alpha)(x-\beta)=0 \text{then}$

A. $x^2-(\alpha)x+\beta=0$

B. $x^2-(\alpha+\beta)x+\alpha\beta=0$

C. $\alpha x^2-x\beta+\alpha\beta=0$

D. none

Answer: B

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65. Sum of the roots of $-7x + 3x^2 - 1 = 0$ is

A. $\frac{3}{4}$

B. $\frac{1}{7}$

C. $\frac{7}{3}$

D. $\frac{1}{2}$

Answer: C

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66. Product of the roots of $1 = x^2$ is..

A. -1

B. 7

C. 0

D. 1

Answer: A

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67. The nature of roots of $3x^2 + 13x - 2 = 0$

A. real and uneual

B. real and equal

C. complex

D. none

Answer: A

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68. $\text{If}(2x-1)(2x+3)=0\text{then}x..$

A. $\frac{1}{2}$ or $\frac{-1}{2}$

B. $\frac{1}{2}$ or $\frac{-3}{2}$

C. $\frac{1}{2}$ or $\frac{2}{3}$

D. none

Answer: B

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69. The roots of $(x-a)(x-b)=b^2$ are...

A. real

B. not real

C. complex

D. none

Answer: A

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70. Product of the roots of $x^2 + 7x = 0$is...

A. 1

B. -7

C. -3

D. 0

Answer: D

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71. For what values of m are the roots of the equation $mx^2 + (m+3)x + 4 = 0$ are equal?

A. 1 or 5

B. -1 or 2

C. 8 or 1

D. 9 or 1

Answer: D

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72. If α and β are the roots of the quadratic equation $2x^2 + 3x - 7 = 0$ then $\frac{\alpha^2 + \beta^2}{\alpha\beta} =$

A. $\frac{-37}{16}$

B. $\frac{-37}{4}$

C. $\frac{-37}{14}$

D. $\frac{37}{8}$

Answer: C

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73. $\text{If}\alpha \text{ and } \beta$ are the roots of $x^2 - 2x + 3 = 0 \text{then} \alpha^2 \beta^2 =$

A. 1

B. 4

C. 8

D. none

Answer: D

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74. In the above problem, $\alpha^2\beta+\beta^2\alpha=$

A. (-3)

B. 8

C. 6

D. none

Answer: C

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75. In Q.No. 73, the value of $\alpha^3+\beta^3=$

A. (-10)

B. 10

C. 8

D. 12

Answer: A

View Text Solution

76. If α and β are the roots of $x^2 + x + 1 = 0$ then $\alpha^2 + \beta^2 =$

A. 8

B. (-1)

C. 12

D. 0

Answer: B

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77.

If α and β are the roots of $x^2-5x+6=0$ then the value of $\alpha-\beta=$

A. ± 1

B. ± 2

C. (-3)

D. none

Answer: A

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78. In the quadratic equation $x^2+x-2=0, a+b+c=$

A. 7

B. 0

C. 8

D. 1

Answer: B

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79. The degreee of any quadratic equation is..

A. 4

B. 1

C. 2

D. 3

Answer: C

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80. Check whether the following are quadratic equations:

$x(2x+3) = x^2 + 1$

A. $x^2 + 3x - 1 = 0$

B. $x^2 - 3x - 2 = 0$

C. $x^2 + x + 1 = 0$

D. none

Answer: A

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81. Form a quadratic equation from

$x^3 - 4x^2 - x + 1 = (x-2)^3 =$

A. $2x^2 - x + 1 = 0$

B. $2x^2 - 13x + 9 = 0$

C. $x^2 + x + 1 = 0$

D. none

Answer: B

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82. If $x + \frac{1}{x} = 2$ then $x^2 + \frac{1}{x^2} = ..$

A. 8

B. 0

C. 4

D. 2

Answer: D

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83. The product of two consecutive positive integers is 306. We need to find the integers.

A. 12

B. 16

C. 18

D. 10

Answer: C

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84. In the above problem, smallest number is...

A. 16

B. 13

C. 19

D. 17

Answer: D

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85. 1 and $\frac{3}{2}$ are the roots of...

A. $2x^2 - 5x + 3 = 0$

B. $x^2 - 5x + 1 = 0$

C. $2x^2 - x + 3 = 0$

D. all

Answer: A

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86. Find the roots of the following quadratic equations by factorisation

$\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

A. $\frac{-5}{\sqrt{2}}$ or 7

B. $\frac{-5}{\sqrt{2}}$ or $-\sqrt{2}$

C. $-\sqrt{2}$ or $\frac{5}{\sqrt{3}}$

D. all

Answer: B

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87. The roots of $2x^2 - x + \frac{1}{8} = 0$ are...

A. $\frac{1}{4}, \frac{1}{2}$

B. $\frac{1}{3}, \frac{1}{7}$

C. $\frac{1}{2}, \frac{1}{8}$

D. $\frac{1}{4}, \frac{1}{4}$

Answer: D

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88. $x(x+4) = 12$ then x =..

A. $-6 \text{ or } 2$

B. 6 or 2

C. $8 \text{ or } -9$

D. none

Answer: A

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89. $x^2 - 7x - 60 = 0$ then x =..

A. 12,17

B. $12, \; -5$

C. 8,11

D. 12,16

Answer: B

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90. Find the roots of the following quadratic equations by factorisation

$3(x-4)^2 - 5(x-4) = 12$

A. $6\frac{-1}{17}$

B. $8, \frac{-1}{2}$

C. 3,4

D. $3, \frac{-4}{3}$

Answer: D

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91. 9 and 1 are the roots of....

A. $x^2 - 10x + 9 = 0$

B. $x^2 - x + 1 = 0$

C. $x^2 + 3x + 4 = 0$

D. none

Answer: A

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92. On solving $x^2 + 5 = -6x$ we get x =

A. $5 \text{ or } -2$

B. $-1 \text{ or } -5$

C. $-3 \text{ or } -7$

D. none

Answer: B

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93. The equation $5x^2 + 2x + 8 = 0$ has...

A. no real roots

B. real roots

C. equal roots

D. none

Answer: A

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94. The discriminant of $3x^2 - 2x = \frac{-1}{3}$ is

A. 1

B. $-\frac{1}{3}$

C. 8

D. 0

Answer: D

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95. Discriminant of the quadratic equation $px^2 + qx + r = 0$ is..

A. $q^2 - pr$

B. $q - 4pr$

C. $q^2 - 4pr$

D. none

Answer: C

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96. Number of distinct line segments that can be formed out of n-points is...

A. $\frac{n(n-1)}{2}$

B. $\frac{n}{2}$

C. $\frac{n+1}{2}$

D. $\frac{n^2(n-1)}{2}$

Answer: A

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97. If $kx(x-2)+6=0$ has equal roots then k =

A. 3

B. -6

C. 7

D. 6

Answer: D

Watch Video Solution

98. Which of the following is a quadratic equation ?

A. $x^2 - 3x + 1$

B. $8x^3 + 7x^2 + 1$

C. $x^2 - x + 1 = 0$

D. all

Answer: C

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99. If α is a root of $ax^2 + bx + c = 0$ then $a\alpha^2 + b\alpha + c =$ ....

A. $-c$

B. 0

C. 8

D. 1

Answer: B

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100. Diagonal of rectangle is .... units.

A. $\sqrt{l} + b^2$

B. $\sqrt{l} + b$

C. $\sqrt{l}b$

D. $\sqrt{l^2 + b^2}$

Answer: D

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101. $(\alpha + \beta)^2 - 2\alpha\beta$=

A. $\alpha^2 + \beta^2 + 1$

B. $\alpha + \beta^2$

C. $\alpha^2 + \beta^2$

D. $\alpha\beta$

Answer: C

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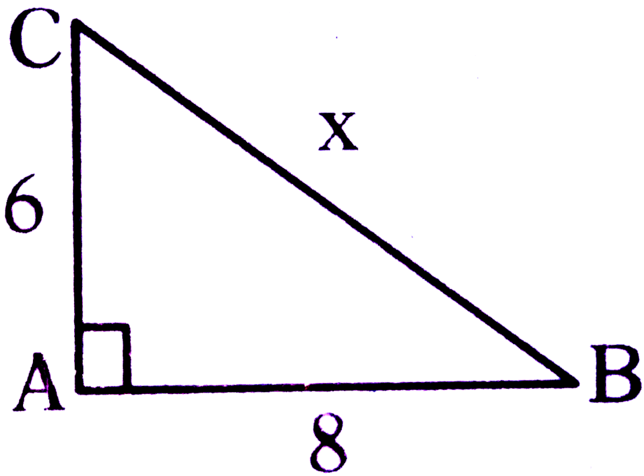
102. From the figure, x=...



A. 7

B. 3

C. 10

D. none

Answer: C

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103. Discriminant of the quadratic equation $x+\frac{1}{x}=3$ is...

A. -10

B. 9

C. 6

D. 5

Answer: D

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104. If α, β are the roots of $x^2-px+q=0$ then $\alpha^3+\beta^3=$

A. $p+q^3$

B. $p-3p^3q$

C. p^3-3pq

D. $p^2 - 3pq$

Answer: C

Watch Video Solution

105. If one root of $x^2 - (p-1)x + 10 = 0$ is 5 then p =

A. 8

B. 7

C. -3

D. none

Answer: A

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106. The coefficient of x in a pure quadratic equation is...

A. 2

B. 0

C. 8

D. none

Answer: B

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107. $\dfrac{x}{a-b} = \dfrac{a}{x-b}$ then x =..

A. $b-a$ or $\dfrac{a}{2}$

B. $b-a$ or $-a$

C. $b+a$ or $-a$

D. all

Answer: B

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108. $P(x) = x^2 + 2x + 1 \text{then} P(x^2) =$

A. $x^4 + 2x^2 + 1$

B. $x^4 + 2x + 1$

C. $x^{30 + 2x + 1}$

D. none

Answer: A

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109. $(1-5x)(x+1)=$

A. $3x^2+1+X$

B. $8X^2=5x+1$

C. $1-4x+5x^2$

D. $1-4x-5x^2$

Answer: D

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110. If the sum of the roots of $kx^2-3x+1=0\text{is}\frac{-4}{3}$ then k = ...

A. $\frac{-4}{9}$

B. $\frac{9}{5}$

C. $\frac{-9}{4}$

D. none

Answer: C

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111. $\sqrt{k+1} = 3$ then k = ...

A. 24

B. 16

C. 19

D. none

Answer: D

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112. If 2 is a root of $x^2 + 5x + r = 0$ then r = ...

A. -4

B. -14

C. 16

D. 8

Answer: B

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113. The roots of $x = \frac{1}{x}$ are...

A. 2 or -2

B. $2 \text{ or } \frac{1}{2}$

C. $1 \text{ or } -1$

D. all

Answer: C

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114. If α and β are the roots of the quadratic equation $x^2 - 3x + 1 = 0 \text{then} \frac{1}{\alpha^2} + \frac{1}{\beta^2}$

A. 7

B. 8

C. -3

D. none

Answer: A

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115. "If " ax^2 - 4x + 3 = 1 "then" x = ...and a= ...

A. -1 or -2

B. 2 or 7

C. $8 \text{ or } \frac{1}{2}$

D. $2 \text{ or } -3$

Answer: A

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116. if $\frac{-7}{3}$ is a root of $6x^2 - 13x - 63 = 0$ then other root is....

A. 8

B. $\frac{1}{3}$

C. $\frac{2}{9}$

D. $\frac{9}{2}$

Answer: D

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117. $\sqrt{x} = \sqrt{2x - 1} \text{then} x = \ldots$

A. 1

B. 4

C. 2

D. none

Answer: A

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118. $\frac{n(n+1)}{2} = 55$ then n = ...

A. 13

B. 16

C. 10

D. 12

Answer: C

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119. $\sqrt{a\sqrt{a\sqrt{a}\ldots\infty}} = \ldots$

A. $a^{1/2}$

B. a

C. a^{3}

D. $a/2$

Answer: B

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120. $\sqrt{a+\sqrt{a+\sqrt{a+\ldots\ldots\infty}}}=\ldots\ldots\ldots$

A. $\dfrac{1+\sqrt{1+4a}}{2}$

B. $\dfrac{1-\sqrt{4a-2}}{3}$

C. $\dfrac{1+\sqrt{2}}{2}$

D. $\dfrac{1-\sqrt{4a-2}}{3}$

Answer: A

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121. The quadratic inequation with $2 < x < 3$ is...

A. $x^2 + 6x + 5 < 0$

B. $x^2 - 5x + 6 > 0$

C. $x^2 - 5x + 6 < 0$

D. none

Answer: C

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122. IF one root of $x^2 - x - k = 0$ is square that of the other, then k=.........

A. 2

B. 3

C. -4

D. none

Answer: D

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123. $x^2 + (x+2)^2 = 290$ then x = ..

A. $9 \text{ or } -13$

B. $8 \text{ or } -12$

C. $11 \text{ or } -13$

D. all

Answer: C

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124. If $\dfrac{1}{x-2}+\dfrac{2}{x-1}=\dfrac{6}{x}$ then x = ...

A. $3 \text{ or } \dfrac{4}{3}$

B. $3 \text{ or } \dfrac{-1}{3}$

C. $1 \text{ or } \dfrac{2}{3}$

D. $8 \text{ or } \dfrac{7}{2}$

Answer: A

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125. A pentagon has... diagonals.

A. 6

B. 7

C. 9

D. none

Answer: D

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126. $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}, x \ne -4, 7$

A. $-2 \text{ or } 1$

B. 2 or 1

C. $-1 \text{ or } 3$

D. $7 \text{ or } \frac{1}{2}$

Answer: B

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127. The roots of $2x^2 + x - 4 = 0$ are...

A. $\dfrac{-1 \pm \sqrt{33}}{4}$

B. $\dfrac{-1 \pm \sqrt{31}}{2}$

C. $\dfrac{-1 \pm \sqrt{29}}{2}$

D. none

Answer: A

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128. Sum of the roots of a pure quadratic equation is..

A. -13

B. 12

C. -9

D. 0

Answer: D

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129. $\text{If} 3y^2 = 192$ then y =

A. 12

B. 6

C. 8

D. none

Answer: C

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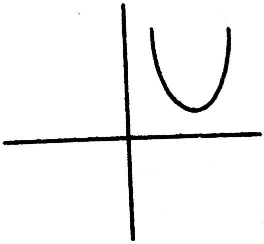
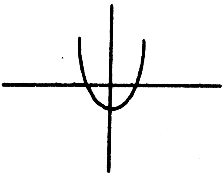
130. If $b^2 < 4ac$ then shape of graph is....

A. 

B. 

C.

D. none

Answer: A

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EXERCISE

1. Check whether the following equations are quadratic or not.

$x^2 - 6x - 4 = 0$

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2. Check whether the following equations are quadratic or not.

$x^3 - 6x^2 + 2x - 1 = 0$

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3. Check whether the following equations are quadratic or not.

$7x = 2x^2$

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4. Check whether the following equations are quadratic or not.

$$x^2 + \frac{1}{x^2} = 2$$

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5. Check whether the following equations are quadratic or not.

$$(2x + 1)(3x + 1) = 6(x - 1)(x - 2)$$

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6. Check whether the following equations are quadratic or not.

$$3y^2 = 192$$

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7. Represent the following situations mathematically :

Raju and Rajender together have 45 marbles. Both of then lost 5 marbles each. And the product of the number of marbles now they have is 124.

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8. Represent the following situations with suitable mathematical equations.

The hypotenuse of a right triangle is 25 cm. We know that the difference in lengths of the other two sides is 5 cm. We would like to find out the length of the two sides?

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9. Check whether the following are quadratic equations:

$$(x-2)^2+1=2x-3$$

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10. Check whether the following are quadratic equation:

$$x(x+1)+8=(x+2)(x-2)$$

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11. Check whether the following are quadratic equation:

$$x(2x+3)=x^2+1$$

Watch Video Solution

12. Check whether the following are quadratic equation:

$$(x+2)^3 = x^3 - 4$$

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13. Check whether the following are quadratic equations:

$$(x+1)^2 = 2(x-3)$$

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14. Chek whether the following are quadratic equation:

$$x^2 - 2x = (-2)(3-x)$$

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15. Chek whether the following are quadratic equation:

$$(x - 2)(x + 1) = (x - 1)(x + 3)$$

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16. Chek whether the following are quadratic equation:

$$(x - 3)(2x + 1) = x(x + 5)$$

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17. Chek whether the following are quadratic equation:

$$(2x - 1)(x - 3) = (x + 5)(x - 1)$$

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18. Chek whether the following are quadratic equation:

$$x^2 + 3x + 1 = (x - 2)^2$$

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19. Chek whether the following are quadratic equation:

$$(x + 2)^3 = 2x(x^2 - 1)$$

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20. Chek whether the following are quadratic equation:

$$x^3 - 4x^2 - x + 1 = (x - 2)^3$$

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21. Represent the following situations in the form of quadratic equation:

The area of a rectangular plot is 528 m^2. The length of the plot is one metre more than twice its breadth. We need to find the length and breadth of the plot.

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22. The product of two consecutive positive integers is 306. We need to find the integers.

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23. Represent the following situations in the form of quadratic equation:

Rohan's mother is 26 years older than him. The product of their ages after 3 years will be 360 years. We need to find Rohan's present age

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24. A train travels a distance of 480 km at a uniform speed. If the speed had been 8km/h less, then it would have taken 3 hours more to cover the same distance. We need to find the speed of the train.

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25. Find the roots of the equation using factorisation method.

$x^2 + 5x + 6 = 0$

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26. Find the roots of the equation using factorisation method.

$x^2 - 5x + 6 = 0$

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27. Find the roots of the equation using factorisation method.

$x^2 + 5x - 6 = 0$

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28. Find the roots of the equation using factorisation method.

$x^2 - 5x - 6 = 0$

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29. Verify that 1 and $\frac{3}{2}$ are the roots of the equation $2x^2 - 5x + 3 = 0$.

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30. Find the roots of the equation $2x^2 - 5x + 3 = 0$ by factorisation.

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31. Find the roots of the quadratic equation $x - \frac{1}{3x} = \frac{1}{6}$

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32. The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, find the other two sides.

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33. A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article (in rupees) was 3 more than twice the number of articles produced on that day. If the total cost of production on that day was Rs. 90, find the number of articles produced and the cost of each article.

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34. Find the dimensions of a rectangle whose perimeter is 28 meters. And whose area is 40 square meters.

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35. The base of a triangle is 4cm longer than its altitude. If the area of the triangle is 48 sq.cm, then find its base and altitude.

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36. Two trains leave a railway station at the same time. The first train travels towards west and the second train towards north. The first train travels 5 km/hr faster then the second train. If after two hours they are 50 km. apart, find the average speed of each train.

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37. In a class of 60 students, each boy contributed rupees equal to the number of girls and each girl contributed rupees equal to the number of boys. If the total money then collected was Rs. 1600, how many boys are there in the class?

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38. A motor boat heads upstream a distance of 24km on a river whose current is running at 3km per hours. Assuming that the motor boat maintained a constant speed, what was its speed ?

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39. Solve the equations by completing the square.

$x^2 - 10x + 9 = 0$

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40. Solve the equations by completing the square

$x^2 - 5x + 5 = 0$

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41. Solve the equations by completing the square

$x^2 + 7x - 6 = 0$

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42. If one can induce parthenocarpy through the application of growth substances, which fruits would you select to induce parthenocarpy and why?

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43. Find the roots of the equation $5x^2 - 6x - 2 = 0$ by the method of completing the square.

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44. Find the roots of $4x^2 + 3x + 5 = 0$ by the method of completing the square.

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45. The two consecutive positive odd integers such that the sum of their squares is 290 are

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46. A rectangular park is to be designed whose breadth is 3 m less than its length. Its area is to be 4 square metres more than area of a park that has already been made in the shape of an isosceles triangle with its base as the breadth of the reatangular park and of altitude 12m. Find its length and breadth.

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47. Find the roots of the following quadratic equations, if they exist.

$x^2 + 4x + 5 = 0$

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48. Find the roots of the following quadratic equations, if they exist.

$$2x^2 - 2\sqrt{2}x + 1 = 0$$

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49. Find the roots of the following equations:

$$x + \frac{1}{x} = 3, x \neq 0$$

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50. Find the roots of the following equations:

$$\frac{1}{x} - \frac{1}{x-2} = 3, x \neq 0, 2$$

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51. A motor boat whose speed is 18km/h in still water. It takes 1 hour more to go 24km upstream than to return downstream to the same spot. Find the speed of the stream.

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52. Find the roots of the following quadratic equations, if they exist.

$2x^2 + x - 4 = 0$

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53. Find the roots of the following quadratic equations, if they exist.

$4x^2 + 4\sqrt{3}x + 3 = 0$

Watch Video Solution

54. Find the roots of the following quadratic equations, if they exist.

$5x^2 - 7x - 6 = 0$

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55. Find the roots of the following quadratic equations, if they exist.

$x^2 + 5 = -6x$

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56. Find the roots of the quadratic equation by applying the quadratic formula.

$2x^2 + x - 4 = 0$

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57. Find the roots of the quadratic equation by applying the quadratic formula.

$4x^2 + 4\sqrt{3}x + 3 = 0$

Watch Video Solution

58. Find the roots of the quadratic equation by applying the quadratic formula.

$5x^2 - 7x - 6 = 0$

Watch Video Solution

59. Find the roots of the quadratic equation by applying the quadratic formula.

$x^2 + 5 = -6x$

Watch Video Solution

60. Find the roots of the following equations:

$$x-\frac{1}{x}=3, x \neq 0$$

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61. Find the roots of the following equations :

$$\frac{1}{x+4}-\frac{1}{x-7}=\frac{11}{30}, x \neq -4, 7$$

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62. The sum of the reciprocals of Rehman ages, (in years) 3 years ago and 5 year from now is $\frac{1}{3}$ Find his present age.

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63. In a class test, the sum of Moulika's marks in Mathematics and English is 30. If she got 2 marks more in Mathematics and 3 marks less in English, the product of her marks would have been 210. Find her marks in the two subjects.

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64. The diagonal of a rectangular field is 60 metres more than the shorter side. If the longer side is 30 metres more then the shorter side, find the sides of the field.

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65. The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number.Find the two numbers.

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66. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, if would have taken 1 hour less for the same journey. Find the speed of the train.

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67. Two water taps together can fill a tank in $9\frac{3}{8}$ hours. The tap of larger diameter takes 10 hours less than the smaller one to fill the tank separately. Find the time in which each tap can separately fill the tank.

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68. An express train takes 1 hour less than a passenger train to travel 132 km between Mysore and Bangalore (without taking into consideration the time they stop at intermediate stations). If the average speed of the express train is 11 km/hr more then that of the passenger train, find the average speed of the two trains.

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69. Sum of the areas of two squares is 468 m^2 If the difference of their perimeters is 24m, find the sides of the two squares.

Watch Video Solution

70. Sum of the areas of two squares is 468 m^2. If the difference of their perimeters is 24 m, find the sides of the two squares.

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71. A stone is thrown vertically upwards with an initial velocity of $10ms^{-1}$ from the top of a cliff of height 40m.How much time it take to reach the ground?

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72. If a polygon of 'n' sides has $\frac{1}{2}n(n-3)$ diagonals. How many sides will a polygon having 65 diagonals ? Is there a polygon with 50 diagonals?

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73. Find the discriminant of the quadratic equation $2x^2 - 4x + 3 = 0$and hence find the nature of its roots.

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74. A pole has to be erected at a point on the boundary of a circular park of diameter 13 metres in such a way that the differences opposite fixed gates A and B on the boundary is 7 metres. Is it possible to do so ? If yes, at what distances from the two gates should the pole be erected ?

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75. Find the discriminant of the equation $3x^2 - 2x + \frac{1}{3} = 0$ and hence find the nature of roots. Find them, If they are real.

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76. Explain the benefits of evaluating the discriminant of a quadratic equation before attempting to solve it. What does its

value signifies?

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77. Write three quadratic equations one having two distinct real solutions, one having no real solution and one having exactly one real solution.

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78. Find the nature of the roots of the following quadratic equations. If real roots exist, find them.

$2x^2 - 3x + 5 = 0$

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79. Find the nature of the roots of the following quadratic equations. If real roots exist, find them.

$3x^2 - 4\sqrt{3}x + 4 = 0$

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80. Find the nature of the roots of the following quadratic equations. If real roots exist, find them.

$2x^2 - 6x + 3 = 0$

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81. Find the values of k for each of the following quadratic equations, so that they have two equal roots. $2x^2 + kx + 3 = 0$

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82. Find the values of k for each of the quadratic equations, so that they have two equal roots.

$kx(x-2)+6=0(k\neq 0)$

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83. Is it possible to desigh a rectangular mango grove whose length is twice its breadth, and the area is 800 m^2 ? If so find its length and breadth.

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84. The sum of the ages of two friends is 20 years. Four years ago,the product of their ages in years was 48. Is the above situation possible ? If so, determine their present ages

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85. Is it possible to desigh a rectangular park of perimeter 80m and area $400m^2$? If so, find its length and breadth.

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86. Some points are plotted on a plane. Each point is joined with all remaining points by line segments. Find the number of points if the number of line segments are 15.

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87. A two digit number is such that the product of its digits, is 8. When 18 is added to the number, they interchange their places. Determine the number.

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88. A piece of wire 8m in length is cut into two pieces and each piece is bent into a squares. Where should the cut in the wire be made if the sum of the areas of these squares is to be 2 m^2?

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89. Vinay and Praveen working together can paint the exterior of a house in 6 days. vinay by himself can complete the job in 5 days less than Praveen. How long will it take Vinay to complete the job?

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90. Show that the sum of roots of a quadratic equation $ax^2 + bx + c = 0(a \neq 0)$ is $\frac{-b}{a}$.

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91. Show that the product of the roots of a quadratic equation $ax^2 + bx + c = 0 (a \neq 0)$ is $\frac{c}{a}$.

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92. The denominator of a fraction is one more than twice the numerator. If the sum of the fraction and its reciprocal is $2\frac{16}{21}$, find the fraction.

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93. Verify that 1 and $\frac{3}{2}$ are the roots of the equation $2x^2 - 5x + 3 = 0$.

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94. $If b^2 - 4ac > 0 \text{in} ax^2 + bx + c = 0,$ then what can you say about roots of the equation ? $(a \neq 0)$

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95. Find the value of k, if 2 is one of the roots of the quadratic equation

$x^2 - kx + 6 = 0$

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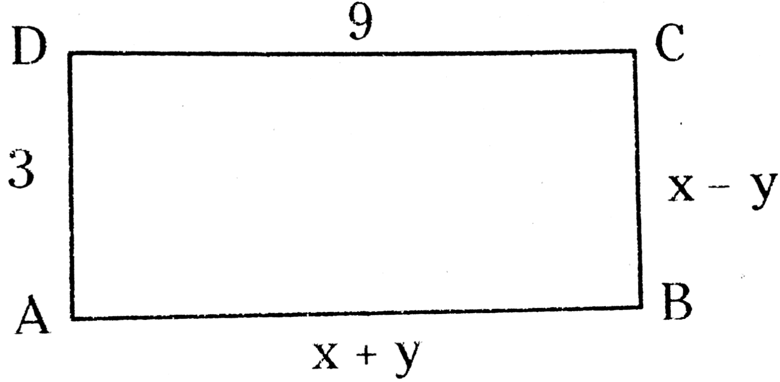
96. In a rectangle ABCD, AB = x + y, BC = x - y, CD = 9 and AD = 3. Find the values of x and y.



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97. Write the nature of roots of the quadratic equation $2x^2 - 5x + 6 = 0$

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98. Write the nature of the roots of the quadratic equation $x^2 - 8x + 16 = 0$

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99. Find sum and product of roots of the Quadratic equation

$x^2 4\sqrt{3}x + 9 = 0$

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100. Find the roots of the Quadratic equation $x^2 + 2x - 3 = 0$.

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101. Find the values of k for which the quadratic equation

$4x^2 + 5kx + 25 = 0$ has equal roots.

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102. Find the discriminant of the quadratic equation

$3x^2 - 5x + 2 = 0$ and hence write the nature of its roots.

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103. $If 9x^2 + kx + 1 = 0$ has equal roots, find the value of k.

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104. If the measure of angles of a triangle are x°, y° and 40° and difference between the two measures of angles x° and $y^{\circ} is 30^{\circ}$ then find the values of x° and y°

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105. The sum of a number and its reciprocal is $\frac{10}{3}$ Find the number.

Watch Video Solution

106. Is it possible to design a rectangular genden, whose length is twice of its breadth and area is $200m^2$? If so, find its length and breadth.

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107. If the equation $kx^2 - 2kx + 6 = 0$ has equal roots, then find the value of k.

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108. A quadratic equation, whose roots are

$2 + \sqrt{3} \text{ and } 2 - \sqrt{3} =$

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109. Without calculating the roots of $x^2 - 5x + 6 = 0$, explain the nature of roots.

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110. Find the roots of quadratic equation $x^2 + 4x + 3 = 0$ by "Completing Square method".

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111. Shashanka said that $(x+1)^2 = 2(x-3)$ is a quadratic equation. Do you agree ?

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112. Sum of the squares of two consecutive positive even integers is 100 , find those numbers by using quadratic equations.

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113. The perimeter of a right- angled triangle is 60 cm. and its hypotenuse is 25 cm. Then find the remaining two sides.

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114. If - 4 is common root for the quadratic equations $2x^2 + px + 8 = 0$ and $p(x^2 + x) + k = 0$ then find the value of 'k'.

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115. Sum of squares of two consecutive even numbers is 580. Find the numbers by writing a sultable Quadratle equation.

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116. Sum of the areas of two squares is $850m^2$. If the difference if their perimeters is 40m, find the sides of two squares.

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117. Sum of the present ages of two friends are 23 years, five years ago product of their ages was 42. Find their ages 5 years hence.

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118. If a number when increased by 12, equals 160 times of its reciprocal, then find the numbers.

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119. A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, if would have taken 1 hour less for the same journey. Find the speed of the train.

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120. Write the roots of quadratic equation $ax^2 + bx + c = 0$ when $b^2 - 4ac > 0$.

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121. Write the two roots of quadratic equation $ax^2 + bx + c = 0$ when $b^2 - 4ac = 0$ is given.

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122. Find a quadratic polynomial with zeroes -2 and $\frac{1}{3}$.

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123. Find the roots of the equation $5x^2 - 7x - 6 = 0$ by the method of completing the square.

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124. The quadratic polynomial, whose zeros are 2 and 3, is.....

A. $x^2 - 5x - 6$

B. $x^2 + 5x - 6$

C. $x^2 - 5x + 6$

D. $x^2 + 5x + 6$

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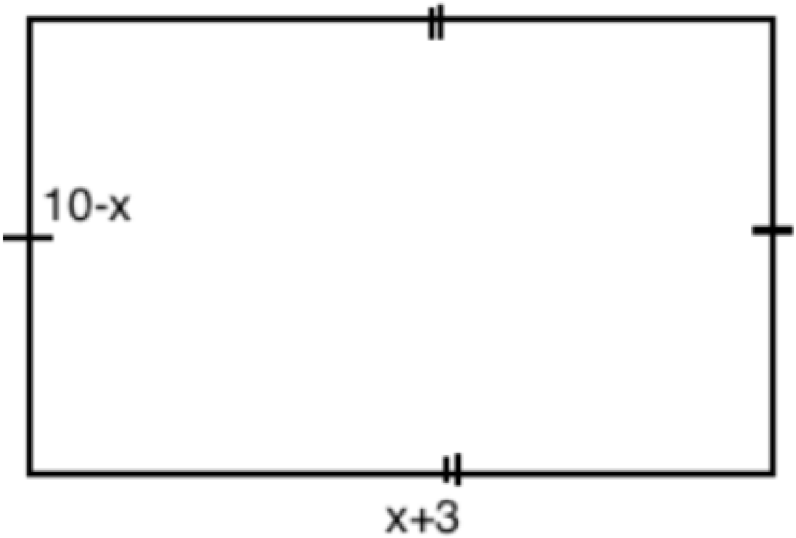
125. Observe the given rectangular figure, then its area in polynomial function is ....



A. $A(x) = x^2 + 7x + 30$

B. $A(x) = -x^2 + 7x + 30$

C. $A(x) = x^2 - 7x + 30$

D. $A(x) = -x^2 - 7x + 30$

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126. Which of the following is a quadratic equation?

A. $x^3 - 6x^2 + 2x - 1 = 0$

B. $x^3 - 6x^2 + 2x - 1 = 0$

C. $x^2 + \frac{1}{x^2} = 2$

D. $(x+1)(x+2)(x+3) = 0$

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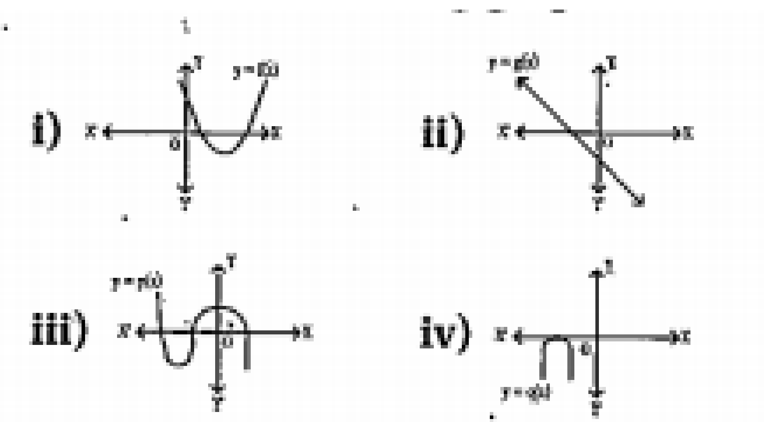
127. Observe the following graphs. Which of them are the graphs of quadratic polynomials?



A. (i), (ii) and (iii)

B. (i) and (iii)

C. (i) and (iv)

D. (i), (iii) and (iv)

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128. Which of the following quadratle. Equations the roots are equal?

A. $x^2 - 5 = 0$

B. $x^2 - 10x + 25 = 0$

C. $x^2 + 5x + 6 = 0$

D. `x^2 - 1 = 0

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129. The quadratic polynomial having $\frac{1}{3}$ and $\frac{1}{2}$ as its zeroes, is.....

A. $x^2 + \frac{5x+1}{6}$

B. $-6x^2 - 5x + 1$

C. $x^2 - \frac{5x-1}{6}$

D. $6x^2 - 5x - 1$

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130. $Ifx^2 - px + q = 0(p, q \in R$ and $p \neq 0, q \neq 0)$ has distinct real roots. Then...

A. $p^2 < 4q$

B. $p^2 > 4q$

C. $p^2 = 4q$

D. $p^2 + 4q = 0$

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131. In a quadratic equation $ax^2 + bx + c = 0 \text{if} b^2 - 4ac > 0$ then their roots are ....

A. real and distinct

B. real and equal

C. imaginary

D. none

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132. If a number is 132 smaller than its square, then the number is

A. 11

B. 8

C. 9

D. 12

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133. If both roots are common to the Quadratic equations $x^2 - 4 = 0$ and $x^2 + px - 4 = 0$, then p =

A. 2

B. 0

C. 4

D. 1

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134. The sum of the roots of $6x^2 = 1$ is

A. 0

B. $\frac{1}{6}$

C. $-\frac{1}{6}$

D. 6

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135. If the sum of a number and its reciprocal is $\frac{17}{4}$, then that number is..........

A. 3

B. 4

C. 5

D. 17

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136. The roots of a quadratic equation $ax^2 - bx + c = 0, a \neq 0$ are

A. $\frac{-b + \sqrt{b^2 - 4ac}}{2a}, \frac{-b + \sqrt{b^2 + 4ac}}{2a}$

B. $\frac{-b + \sqrt{b^2 - 4ac}}{2a}, \frac{-b - \sqrt{b^2 + 4ac}}{2a}$

C. $\dfrac{b+\sqrt{b^2-4ac}}{2a}, \dfrac{b-\sqrt{b^2-4ac}}{2a}$

D. $\dfrac{-b+\sqrt{b^2-4ac}}{2a}, \dfrac{-b-\sqrt{b^2-4ac}}{2a}$

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137. One of the roots of the Q.E. $6x^2-x-2=0$ is

A. $\dfrac{1}{3}$

B. $\dfrac{-1}{3}$

C. $\dfrac{-2}{3}$

D. $\dfrac{2}{3}$

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138. If the sum of the squares of two consecutive odd numbers is 74, then the smaller number is

A. 11

B. 3

C. 7

D. 5

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139. The roots of the equation $4x^2 + 4\sqrt{3}x + 3 = 0$ are

A. $\frac{\sqrt{3}}{2}$

B. $\frac{-\sqrt{3}}{2}$

C. -4

D. -2

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140. The sum of a number and its reciprocal is $\frac{50}{7}$,then the number is

A. $\frac{1}{7}$

B. 5

C. $\frac{2}{7}$

D. $\frac{3}{7}$

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141. The roots of the equation $3x^2 - 2\sqrt{6}x + 2 = 0$ are

A. $\frac{2}{\sqrt{3}}, \frac{-2}{\sqrt{3}}$

B. $\frac{1}{\sqrt{3}}, \frac{-1}{\sqrt{3}}$

C. $\sqrt{\frac{2}{3}}, \sqrt{\frac{2}{3}}$

D. $\frac{1}{\sqrt{3}}, \frac{5}{\sqrt{3}}$

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142. $Ifx^2 - 2x + 1 = 0 \text{then} x + \frac{1}{x} =$

A. 0

B. 2

C. 1

D. None

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143. The roots of the Q.E. $\sqrt{3}x^2 - 2x - \sqrt{3} = 0 \text{are}$

A. Real and distinct

B. Real and equal

C. Not real

D. Can't be determined

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144. One solution of the Q.E. $2x^2 - 5x - 3 = 0$ is

A. x = 2

B. x = -1

C. x = -3

D. x = 3

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145. $If 5x^2 - kx + 11 = 0$ has a root x = 3, then k =

A. $\frac{16}{3}$

B. $\frac{56}{3}$

C. $\frac{-17}{3}$

D. 15

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146. The sum of the roots of the equation $3x^2 - 7x + 11 = 0$

A. $\frac{11}{3}$

B. $\frac{-7}{3}$

C. $\frac{7}{3}$

D. $\frac{3}{7}$

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147. The positive root of $\sqrt{3x^2 + 6} = 9$ is

A. 3

B. 5

C. 4

D. $\frac{2}{5}$

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148. The value of p for which $4x^2 - 2px + 7 = 0$ has a real root is

A. $p > 2\sqrt{7}$

B. $p > \sqrt{7}$

C. $p > \sqrt{5}$

D. $p > \sqrt{3}$

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149. The roots of $5x^2 - x + 1 = 0$ are

A. Real and equal

B. Real and unequal

C. Imaginary

D. None

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150. Which of the following Q.E has real and equal roots?

A. $x^2 - 4x + 4 = 0$

B. $2x^2 - 4x + 3 = 0$

C. $3x^2 - 5x + 2 = 0$

D. $x^2 - 2\sqrt{2}x - 6 = 0$

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151. The standard form of a Q.E. is

A. $ax + b = 0$

B. $ax^2 + bx + c = 0, a \neq 0$

C. $ax^3 + bx^2 + cx + d = 0$

D. $a^2x + b^2y^2 = c^2$

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152. The roots of the Q.E.$\left(\sqrt{5}x - 3\right)\left(\sqrt{5}x - 3\right) = 0 \text{are}$

A. $\frac{3}{\sqrt{5}}, \frac{3}{\sqrt{5}}$

B. $\frac{-3}{\sqrt{5}}, \frac{-3}{\sqrt{5}}$

C. $\frac{3}{\sqrt{5}}, \frac{-3}{\sqrt{5}}$

D. $\frac{\sqrt{3}}{\sqrt{5}}, \frac{\sqrt{3}}{\sqrt{5}}$

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153. The roots of the Q.E. $(7x-1)(2x+3)=0$ are

A. 1, 3

B. $\frac{1}{7}, \frac{3}{2}$

C. $\frac{1}{7}, \frac{-3}{2}$

D. $\frac{-1}{7}, \frac{-3}{2}$

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154. Which of thr following is a Q.E.

A. $(x+1)^2 = 3(x+7)$

B. $(x-1)(x+3) = (x-2)(x+1)$

C. $x^2 + 5x - 7 = (x-4)^2$

D. $x^3 - 9 = 0$

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155. The roots of the Q.E.

$\dfrac{9}{x^2 - 27} = \dfrac{25}{x^2 - 11}$ are

A. ± 11

B. ± 3

C. ± 9

D. ± 6

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156. The roots of the QE

$(3x+4)^2 - 49 = 0$ are

A. $1, \frac{-11}{3}$

B. $\frac{1}{3}, \frac{11}{3}$

C. $\frac{-1}{3}, \frac{-11}{3}$

D. 1, -11

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157. The sum of a number and its recip- rocal is $\frac{5}{2}$ then the number is

A. 2 or $\frac{1}{3}$

B. 3 or $\frac{1}{2}$

C. 2 or $\frac{1}{2}$

D. 5 and $\frac{1}{5}$

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158. The roots of the Q.E. $\left(x - \frac{1}{3}\right)^2 = 9$

A. 10, 8

B. $\frac{-10}{3}, \frac{8}{3}$

C. $\frac{10}{3}, \frac{-8}{3}$

D. $(-3, 3)$

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159. Product of the roots of the Q.E.

$3x^2 - 6x + 11 = 0$is

A. 2

B. $\frac{-11}{3}$

C. $\frac{-11}{6}$

D. $\frac{11}{3}$

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160. The Q.E. whose roots are -2,-3 is

A. $x^2 - 5x + 6 = 0$

B. $x^2 + 5x + 6 = 0$

C. $x^2 - 5x - 6 = 0$

D. $x^2 + 5x - 6 = 0$

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161. If the equation $x^2 - kx + 1 = 0$ has equal roots. Then

A. k= 1

B. k = -1

C. k = 2

D. k = -4

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162. If (x - 3)(x + 3) = 16 then the value of x is

A. ± 4

B. ± 3

C. ± 6

D. ± 5

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163. If the sum of the roots of the Q.E. $3x^2 + (2k+1)x - (k+5) = 0$ is equal to the product of the roots, then the value of k is

A. 3

B. 4

C. 2

D. 6

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164. The Q.E. whose one root is $2 - \sqrt{3}$ is

A. $x^2 - 4x + 1 = 0$

B. $x^2 + 4x - 1 = 0$

C. $x^2 - 4x - 1 = 0$

D. $x^2 - 2x - 3 = 0$

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165. Form a quadratic equation whose roots are k and $\frac{1}{k}$

A. $x^2 + \left(k + \frac{1}{k}\right)x + 1 = 0$

B. $xk^2 - kx + 1 = 0$

C. $x^2 - (k + k)x + 1 = 0$

D. $x^2 - \left(k + \frac{1}{k}\right)x + 1 = 0$

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166. The roots of a quadratic equation $\frac{x}{p} = \frac{p}{x}$ are

A. $\pm p$

B. p, 2p

C. -p, 2p

D. -p, -2p

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167. The roots of a quadratic equation

$ax^2 + bx + c = 0 \text{is}$

A. $\frac{-b + \sqrt{b^2 - 4ac}}{ac}$

B. $\frac{-b - \sqrt{b^2 - 4}}{3}$

C. $\frac{-b - \sqrt{b - 4ac}}{2}$

D. $\dfrac{-b+\sqrt{b^2-4ac}}{2a}$

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168. The product of the roots of the quadratic equation $\sqrt{2}x^2-3x+5\sqrt{2}=0$

A. $\dfrac{-5}{3}$

B. $\sqrt{2}$

C. 5

D. 3

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169. In the above problem a_5=...

A. $\dfrac{3}{\sqrt{2}}$

B. $\dfrac{-3}{\sqrt{2}}$

C. 3

D. 5

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170. The sum of the roots of the quadratic equation $5x^2 + 4\sqrt{3}x - 11 = 0$ is

A. $\dfrac{-11}{5}$

B. $\dfrac{11}{4}$

C. $\dfrac{-4}{3}$

D. $\frac{-4}{5}\sqrt{3}$

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171. Find the zeroes of the quadratic polynomials given below. Find the sum and product of the zeroes and verify relationship to the coeffcients of terms of terms in the polynomial.

$p(x) = x^2 - 4$

A. $\frac{5}{-11}$

B. $\frac{11}{5}$

C. $\frac{-11}{5}$

D. $\frac{1}{5}$

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172. The quadratic equation whose roots are -3 and -4 is ...

A. $7x^2 + X + 1 = 0$

B. $x^2 + 7x + 12 = 0$

C. $x^2 - 3x + 1 = 0$

D. none

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173. If one root of a quadratic equation is $7 - \sqrt{3}$ then the quadratic equation is ....

A. $x^2 - 7x + 3 = 0$

B. $x^2 - 4x + 6 = 0$

C. $x^2 - 7x + 1 = 0$

D. $x^2 - 14x + 46 = 0$

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174. The nature of the roots of a quadratic equation $4x^2 + 5x + 1 = 0$ is.....

A. real and distinct

B. real and equal

C. imaginary

D. none

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175. The nature of the roots of quadratic equation $3x^2 + x + 8 = 0$ is...

A. real and distinct

B. real and equal

C. imaginary

D. none

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176. The nature of the roots of a quadratic equation $4x^2 - 12x + 9 = 0$ is....

A. real and equal

B. real and distinct

C. imaginary

D. none

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177. The roots of a quadratic equation $(\sqrt{2}x+3)(5x-\sqrt{3})=0$ are.....

A. $\frac{1}{3}, \frac{1}{\sqrt{2}}$

B. $\frac{1}{2}, \frac{3}{\sqrt{5}}$

C. $\frac{-3}{\sqrt{2}}, \frac{1}{5}$

D. $\frac{-3}{\sqrt{2}}, \frac{\sqrt{3}}{5}$

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178. The roots of the quadratic equation $\frac{x^2 - 8}{x^2 + 20} = \frac{1}{2}$ are...

A. ± 2

B. ± 6

C. ± 13

D. ± 7

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179. The discriminant of $5x^2 - 3x - 2 = 0$ is...

A. 49

B. 89

C. 20

D. none

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180. $If b^2 - 4ac < 0$ then the roots of the quadratic equation are...

A. distinct

B. equal

C. imaginary

D. none

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181. If $b^2 - 4ac = 0$ then the roots of the quadratic equation are...

A. real and distinct

B. real and equal

C. imaginary

D. none

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182. For what positive value of x the quadratic equation $4x^2 - 9 = 0$

A. $\frac{2}{3}$

B. $\frac{-2}{3}$

C. $\frac{-3}{2}$

D. $\frac{3}{2}$

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183. If the roots of a quadratic equation $ax^2 + bx + c = 0$ are real and equal then b^2 =...

A. 4ab

B. 4ac

C. $\frac{ac}{4}$

D. a^2c^2

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184. The roots of $4x^2 - 20x + 25 = 0$ are ....

A. real and equal

B. imaginary

C. real and distinct

D. none

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185. The nature of roots of $3x^2 + 6x - 2 = 0 \text{is} \ldots.$

A. real and distinct

B. real and equal

C. complex

D. none

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186. The roots of $7x^2 + 3x + 8 = 0$ are...

A. real

B. not real

C. real and equal

D. none

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187. Sum of the roots of $ax^2 + bx + c = 0$ is..

A. $\frac{c}{a}$

B. $\frac{b}{a}$

C. $\frac{a}{b}$

D. none

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188. Product of the roots of $ax^2 + bx + c = 0$ is...

A. $\frac{c}{a}$

B. $\frac{-b}{a}$

C. `(-c)/a

D. none

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189. $3x^2 + (-kx) + 8 = 0$ has real roots if ...

A. $k < 4\sqrt{6}$

B. $k > 4\sqrt{6}$

C. k = 6

D. k = 0

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190. $4x^2 + kx - 2 = 0$ has no real roots if.....

A. $k < -\sqrt{32}$

B. $k = 10$

C. $k < \sqrt{32}$

D. none

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191. The quadratic equation whose roots are 2,3 is...

A. $x^2 - 5x + 1 = 0$

B. $x^2 - 5x - 6 = 0$

C. $x^2 - 3x + 1 = 0$

D. $x^2 - 5x + 6 = 0$

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192. If one root of $2x^2 + kx - 6 \text{is} 2, \text{then} k = \ldots.\,.$

A. 3

B. 4

C. 1

D. -1

Watch Video Solution

193. If $x^2 - 8kx + 16 = 0$ has equal roots then ....

A. $k = \pm\sqrt{2}$

B. $k = \pm 7$

C. $k = \pm 1$

D. none

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194. $\frac{x}{x-y} - \frac{y}{x+y} = ..$

A. $\frac{x^2+y^2}{x^2-y^2}$

B. $\frac{x^2+y^2}{x+y}$

C. $\frac{x^2y^2}{x+y}$

D. none

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195. $\frac{2a^2+a-1}{a+1} + \frac{3a^2+5a+2}{3a+2} + \frac{4-a^2}{a+2} = ..$

A. $\frac{a}{2} + 2$

B. $\frac{a+1}{2}$

C. 2(a + 1)

D. none

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196. $\frac{1}{a+3} + \frac{1}{a-3} + \frac{6}{9-a^2} = \ldots$

A. $\frac{1}{a+2}$

B. $\frac{3}{a+2}$

C. $\frac{2}{a+1}$

D. $\frac{2}{a+3}$

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197. $\dfrac{1-\frac{1}{1+x}}{\frac{1}{1+x}} = \ldots$

A. 1

B. x^2

C. x

D. 0

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198. $\left(x+\dfrac{1}{x}\right)^2-\left(y+\dfrac{1}{y}\right)^2-\left(xy-\dfrac{1}{xy}\right)\cdot\left(\dfrac{x}{y}-\dfrac{y}{x}\right)$=......

A. 0

B. 1

C. xy

D. $\frac{1}{xy}$

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199. Sum of the roots of $bx^2 + ax + c = 0$ is

A. $\frac{-b}{a}$

B. $\frac{c}{a}$

C. $\frac{a}{b}$

D. $\frac{-a}{b}$

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200. $(x - \alpha)(x - \beta) = 0 \text{then}$

A. $x^2 - (\alpha)x + \beta\alpha = 0$

B. $x^2 - (\alpha + \beta)x + \alpha\beta = 0$

C. $\alpha x^2 - x\beta + \alpha\beta - 0$

D. none

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201. Sum of the roots of $-7x + 3x^2 - 1 = 0$ is

A. $\frac{3}{4}$

B. $\frac{1}{7}$

C. $\frac{7}{3}$

D. $\frac{1}{2}$

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202. Product of the roots of $1 = x^2$ is..

A. -1

B. 7

C. 0

D. 1

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203. The nature of roots of $3x^2 + 13x - 2 = 0$

A. real and-unequal

B. real and equal

C. complex

D. none

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204. $\text{If}(2x-1)(2x+3)=0\text{then}x..$

A. $\frac{1}{2}$ or $\frac{-1}{2}$

B. $\frac{1}{2}$ or $\frac{-3}{2}$

C. $\frac{1}{2}$ or $\frac{2}{3}$

D. none

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205. The roots of $(x-a)(x-b)=b^2$ are...

A. real

B. not real

C. complex

D. none

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206. Product of the roots of $x^2+7x=0$is...

A. 1

B. -7

C. -3

D. 0

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207. For what values of m are the roots of the equation $mx^2 + (m+3)x + 4 = 0$ are equal?

A. 1 or 5

B. - 1 or 2

C. 8 or 1

D. 9 or 1

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208. Ifα and β are the roots of the quadratic equation $2x^2 + 3x - 7 = 0$then$\dfrac{\alpha^2 + \beta^2}{\alpha\beta} =$

A. $\dfrac{-37}{16}$

B. $\dfrac{-37}{4}$

C. $\dfrac{-37}{14}$

D. $\dfrac{37}{8}$

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209. If α and β are the roots of $x^2 - 2x + 3 = 0$ then $\alpha^2 + \beta^2$ =

....

A. -2

B. 4

C. 8

D. none

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210. If α and β are the roots of $x^2 - 2x + 3 = 0$ then $\alpha^2\beta + \beta^2\alpha$ =....

A. -3

B. 8

C. 6

D. none

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211. If α and β are the roots of $x^2 - 2x + 3 = 0$ the value of $\alpha^3 + \beta^3$ = ...

A. -10

B. 10

C. 8

D. 12

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212. If α and β are the roots of $x^2 + x + 1 = 0$ then $\alpha^2 + \beta^2 =$

A. 8

B. -1

C. 12

D. 0

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213.

If α and β are the roots of $x^2-5x+6=0$ then the value of $\alpha-\beta=$

A. ± 1

B. ± 2

C. -3

D. none

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214. In the quadratic equation $x^2 + x - 2 = 0$, $a + b + c =$

A. 7

B. 0

C. 8

D. 1

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215. The degreee of any quadratic equation is..

A. 4

B. 1

C. 2

D. 3

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216. Check whether the following are quadratic equation:

$x(2x+3) = x^2 + 1$

A. $x^2 + 3x - 1 = 0$

B. $x^2 - 3x - 2 = 0$

C. $x^2 + x + 1 = 0$

D. none

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217. Form a quadratic equation from $x^3 - 4x^2 - x + 1 = (x-2)^3 =$

A. $2x^2 - x + 1 = 0$

B. $2x^2 - 13x + 9 = 0$

C. $x^2 + x + 1 = 0$

D. none

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218. If $x + \frac{1}{x} = 2$ then $x^2 + \frac{1}{x^2} = ..$

A. 8

B. 0

C. 4

D. 2

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219. The product of two consecutive positive integers is 306. We need to find the integers.

A. 12

B. 16

C. 18

D. 10

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220. A square carrom board has a perimeter of 320 cm. How much is its area?

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221. 1 and $\frac{3}{2}$ are the roots of...

A. $2x^2 - 5x + 3 = 0$

B. $x^2 - 5x + 1 = 0$

C. $2x^2 - x + 3 = 0$

D. all

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222. The roots of $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$ are ....

A. $\dfrac{-5}{\sqrt{2}}$ or 7

B. $\dfrac{-5}{\sqrt{2}}$ or $-\sqrt{2}$

C. $-\sqrt{2}$ or $\dfrac{5}{\sqrt{3}}$

D. all

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223. The roots of $2x^2 - x + \dfrac{1}{8} = 0$ are...

A. $\dfrac{1}{4}, \dfrac{1}{2}$

B. $\dfrac{1}{3}, \dfrac{1}{7}$

C. $\dfrac{1}{2}, \dfrac{1}{8}$

D. $\frac{1}{4}, \frac{1}{4}$

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224. $x(x+4) = 12$ then x =..

A. -6 or 2

B. 6 or 7

C. 8 or -9

D. none

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225. $x^2 - 7x - 60 = 0$ then x =..

A. 12, 17

B. 12, -5

C. 8, 11

D. 12, 16

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226. Find the roots of the quadratic equations by factorisation:

$3(x-4)^2 - 5(x-4) = 12$

A. $6, \frac{-1}{17}$

B. $8, \frac{-1}{2}$

C. 3, 4

D. $3, \frac{-4}{3}$

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227. 9 and 1 are the roots of....

A. $x^2 - 10x + 9 = 0$

B. $x^2 - x + 1 = 0$

C. $x^2 + 3x + 4 = 0$

D. none

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228. On solving $x^2 + 5 = -6x$ we get x =

A. 5 or -2

B. -1 or -5

C. -3 or -7

D. none

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229. The equation $5x^2 + 2x + 8 = 0$ has...

A. no real roots

B. real roots

C. equal roots

D. none

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230. The discriminant of $3x^2 - 2x = \frac{-1}{3}$ is

A. 1

B. $-\frac{1}{3}$

C. 8

D. 0

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231. Discriminant of the quadratic equation $px^2 + qx + r = 0$ is..

A. $q^2 - pr$

B. q - 4pr

C. $q^2 - 4pr$

D. none

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232. Number of distinct line segments that can be formed out of n-points is...

A. $\frac{n(n-1)}{2}$

B. $\frac{n}{2}$

C. $\frac{n+1}{2}$

D. $\frac{n^2(n-1)}{2}$

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233. If $kx(x-2)+6=0$ has equal roots then k =

A. 3

B. -6

C. 7

D. 6

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234. Which of the following is a quadratic equation ?

A. x^2-3x+1

B. `8x^3 + 7x^2 + 1

C. $x^2-x+1-0$

D. all

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235. If α is a root of $ax^2 + bx + c = 0$ then $a\alpha^2 + b\alpha + c =$ ....

A. -c

B. 0

C. 8

D. 1

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236. Diagonal of rectangle is .... units.

A. $\sqrt{l} + b^2$

B. $\sqrt{l} + b$

C. $\sqrt{lb}$

D. $\sqrt{l^2 + b^2}$

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237. $(\alpha + \beta)^2 - 2\alpha\beta$=

A. $\alpha^2 + \beta^2 + 1$

B. $\alpha + \beta^2$

C. $\alpha 2 + \beta 2$

D. $\alpha\beta$

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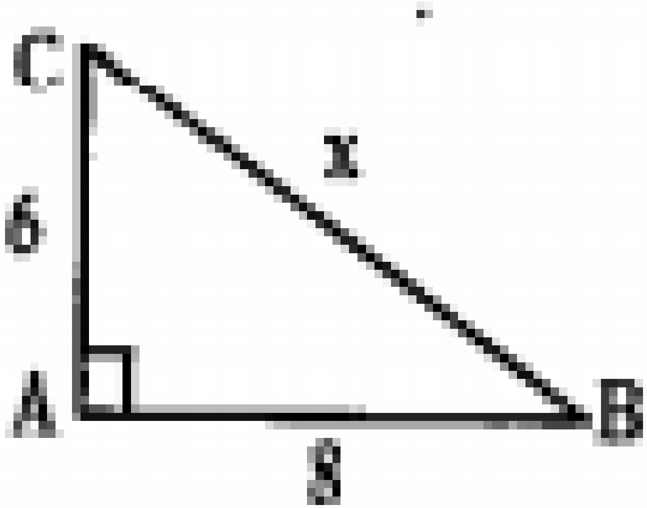
238. From the figure, x =..........



A. 7

B. 3

C. 10

D. none

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239. Discriminant of the quadratic equation $x + \frac{1}{x} = 3$ is...

A. -10

B. 9

C. 6

D. 5

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240. $\text{If}\alpha, \beta \text{are the roots of} x^2 - px + q = 0 \text{then} \alpha^3 + \beta^3 =$

A. $p + q^3$

B. $p - 3p^3q$

C. $p^3 - 3pq$

D. $p^2 - 3pq$

Watch Video Solution

241. If one root of $x^2 - (p-1)x + 10 = 0$ is 5 then p =

A. 8

B. 7

C. -3

D. none

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242. The coefficient of x in a pure quadratic equation is...

A. 2

B. 0

C. 8

D. none

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243. $\dfrac{x}{a-b} = \dfrac{a}{x-b}$ then x =..

A. $b - a \text{ or } \dfrac{a}{2}$

B. $b - a \text{ or } -a$

C. $b + a \text{ or } -a$

D. all

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244. $P(x) = x^2 + 2x + 1 \text{then} P(x^2) =$

A. $x^4 + 2x^2 + 1$

B. $x^4 + 2x + 1$

C. $x^3 + 2x + 1$

D. none

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245. $(1 - 5x)(x + 1) =$

A. $3x^2 + 1 + x$

B. $8x^2 - 5x + 1$

C. $1 - 4x + 5x^2$

D. $1 + 4x - 5x^2$

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246. If the sum of the roots of $kx^2 - 3x + 1 = 0 \text{is} \frac{-4}{3}$ then k = ...

A. $\frac{-4}{9}$

B. $\frac{9}{5}$

C. $\frac{-9}{4}$

D. none

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247. $\sqrt{k+1} = 3$ then k = ...

A. 24

B. 16

C. 19

D. none

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248. If 2 is a root of $x^2 + 5x + r = 0$ then r = ...

A. -4

B. -14

C. 16

D. 8

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249. The roots of $x = \frac{1}{x}$ are...

A. 2 or -2

B. 2 or $\frac{1}{2}$

C. 1 or -1

D. all

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250. If α and β are the roots of the quadratic equation $x^2 - 3x + 1 = 0 \text{then} \dfrac{1}{\alpha^2} + \dfrac{1}{\beta^2}$

A. 7

B. 8

C. -3

D. none

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251. "If " ax^2 - 4x + 3 = 1 "then" x = ...and a= ...

A. 1 or 3

B. 2 or 7

C. 8 or $\dfrac{1}{2}$

D. 2 or -3

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252. if $\frac{-7}{3}$ is a root of $6x^2 - 13x - 63 = 0$ then other root is....

A. 8

B. $\frac{1}{3}$

C. $\frac{2}{9}$

D. $\frac{9}{2}$

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253. $\sqrt{x} = \sqrt{2x - 1}$ then $x = \ldots$

A. 1

B. 4

C. 2

D. none

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254. $\frac{n(n+1)}{2} = 55$ then n = ...

A. 13

B. 16

C. 10

D. 12

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255. $\sqrt{a\sqrt{a\sqrt{a}...\infty}} = ...$

A. $a^{1/2}$

B. a

C. a^3

D. $a/2$

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256. $\sqrt{a+\sqrt{a+\sqrt{a+......\infty}}} = ...$

A. $\dfrac{1+\sqrt{1+4a}}{2}$

B. $\dfrac{1-\sqrt{4a-2}}{3}$

C. $\frac{1+\sqrt{2}}{2}$

D. none

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257. The quadratic inequation with $2 < x < 3$ is...

A. $x^2 + 6x + 5 < 0$

B. $x^2 - 5x + 6 > 0$

C. $x^2 - 5x + 6 < 0$

D. none

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258. IF one root of $x^2 - x - k = 0$ is square that of the other, then k=.........

A. 2

B. -3

C. -4

D. none

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259. $x^2 + (x+2)^2 = 290$ then x = ..

A. 9 or -13

B. 8 or -12

C. 11 or -13

D. all

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260. If $\frac{1}{x-2}+\frac{2}{x-1}=\frac{6}{x}$ then x = ...

A. 3 or $\frac{4}{3}$

B. 3 of $\frac{-1}{3}$

C. 1 or $\frac{2}{3}$

D. 8 or $\frac{7}{2}$

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261. A pentagon has... diagonals.

A. 6

B. 7

C. 9

D. none

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262. Find the roots of the following equations :

$$\frac{1}{x+4}-\frac{1}{x-7}=\frac{11}{30}, x \ne -4, 7$$

A. - 2 or 1

B. 2 or 1

C. -1 or 3

D. 7 or $\frac{1}{2}$

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263. The roots of $2x^2 + x - 4 = 0$ are...

A. $\frac{-1 \pm \sqrt{33}}{4}$

B. $\frac{-1 \pm \sqrt{31}}{2}$

C. $\frac{-1 \pm \sqrt{29}}{2}$

D. none

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264. Sum of the roots of a pure quadratic equation is..

A. -13

B. 12

C. -9

D. 0

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265. $\text{If} 3y^2 = 192$ then y =

A. 12

B. 6

C. 8

D. none

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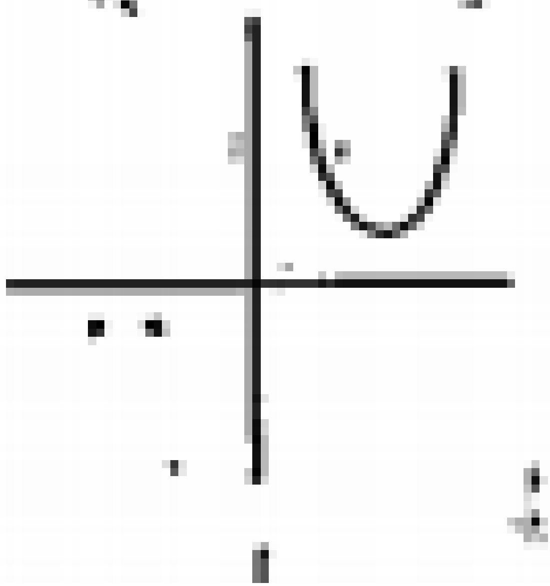
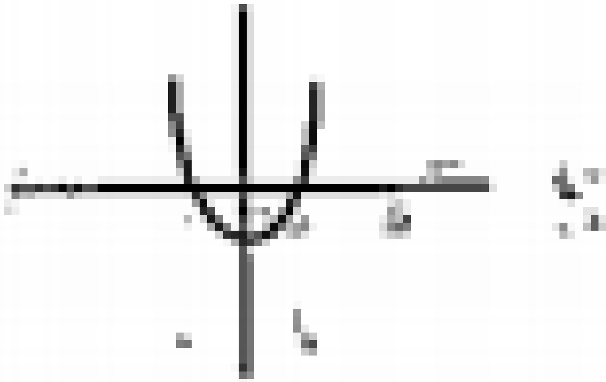
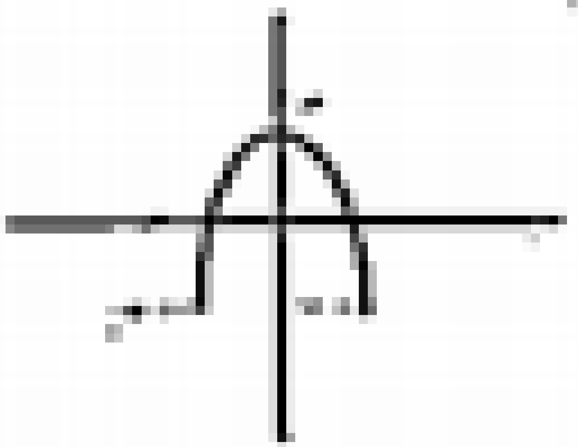
266. If $b^2 - 4ac<0$ then shape of graph is.........

A) 

B)



C)



A. (Picture)

B. (Picture)

C. (Picture)

D. none

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267. The general form of a quadratic equation in variable x is......

A. $ax^2 + bx + . c = 0$ (a ne 0)`

B. $ax + bx^2 + c = 0(b \neq 0)$

C. $ax^2 + bx = 0(a \neq 0)$

D. $a^2x + bx + c = 0(b \neq 0)$

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268. The possible number of roots to a quadratic equation are....

A. At a maximum of 3

B. At a maximum of 2

C. Infinite

D. At a maximum of 5

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269. If the roots of a quadratic equation $px^2 + qx + r = 0$ are imaginary then......

A. $q^2 > 4pr$

B. $q^2 < 4pr$

C. $q^2 = 4pr$

D. $p. \; = q + r$

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270. The discriminant of quadratic equation $2x^2 + x - 4 = 0$ is...

A. 35

B. 36

C. 33

D. 38

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