



MATHS

BOOKS - NAVBODH MATHS (HINGLISH)

QUADRATIC EQUATION

Examples For Practice

1. Which of the following is a quadratic equation?

A. $6x^2 = 20 - x^2$

B. $\frac{3}{3} - 3 = 4x^2$

C. $x^2 \left(\frac{1}{x} - 2 \right) = \frac{7}{2}$

D. $5x + 7 = 3x$

Answer: $x^2 \left(\frac{1}{x} - 2 \right) = \frac{7}{2}$



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2. What is the solution of the quadratic equation $2x^2 - 7x + 6 = 0$

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

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

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

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

Answer: $\frac{3}{2}, 2$



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3. What is the value of k , if the roots of

$x^2 + kx + k = 0$ are real and equal ?

A. 0

B. 4

C. 0 or 4

D. 2

Answer: 0 or 4



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4. Which of the following is the value of the discriminant for the quadratic equation

$$2x^2 + 5\sqrt{3}x + 6 = ?$$

A. 27

B. 123

C. $25\sqrt{3} - 48$

D. 72

Answer: 27



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5. Which of the following equations has roots-
2 and 7?

A. $x^2 + 5x - 14 = 0$

B. $x^2 - 5x - 14 = 0$

C. $x^2 + 5x + 14 = 0$

D. $x^2 - 5x + 14 = 0$

Answer: $x^2 - 5x - 14 = 0$



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6. For which of the following quadratic equations is $\alpha + \beta = 5$?

A. $2x^2 + 10x + 25 = 0$

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

C. $3x^2 + 15x - 16 = 0$

D. $3x^2 - 5x + 14 = 0$

Answer: $3x^2 - 15x + 16 = 0$



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7. What is the nature of the roots of the quadratic equation $4x^2 - 8x + 9 = 0$?

A. Real

B. Not real

C. Real and equal

D. Real and unequal

Answer: Not real



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8. What is the nature of the roots of the quadratic equation $9x^2 + 25 = 30x$

A. Real

B. Not real

C. Real and equal

D. Real and unequal

Answer: Real and equal



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9. What is the nature of the roots of the quadratic equation $2x^2 - 3x - 4 = 0$

A. Real

B. Not real

C. Real and equal

D. Real and unequal

Answer: Real and unequal



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10. What is the value of k for which the quadratic equation $3x^2 - kx + k = 0$ has equal roots ?

A. 3

B. 6

C. 9

D. 12

Answer: 12



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11. For which of the following equations is $\alpha + \beta = 11$ and $\alpha\beta = 33$?

A. $x^2 - 11x + 33 = 0$

B. $x^2 - 11x - 33 = 0$

C. $x^2 + 11x + 33 = 0$

D. $x^2 + 11x - 33 = 0$

Answer: $x^2 - 11x + 33 = 0$



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12. What is the value of k , if one root of the quadratic equation $kx^2 - 7x + 12 = 0$ is 3



13. If one of the roots of the quadratic equation $kx^2 + 2x - 8 = 0$ is -2, then what is the value of k ?

A. 2

B. 3

C. 1

D. 4

Answer: 3





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14. If for a quadratic equation $b^2 - 4ac = 0$ then which of the following statements is true ?

- A. The roots are real and unequal
- B. The roots are not real
- C. The roots are real and equal
- D. The roots are irrational

Answer: The roots are real and equal



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15. What are the roots of the quadratic equation $2x^2 + 6 = -7x$?

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

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

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

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

Answer: $-2, -\frac{3}{2}$



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16. If the roots of $2x^2 - 6x + k = 0$ are real and equal, find k.



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17. Find the value of a, b and c for the following quadratic equations by comparing with general form :

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



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18. Find the value of a , b and c for the following quadratic equations by comparing with general form :

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



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19. Find the value of a , b and c for the following quadratic equations by comparing

with general form :

$$5x^2 + 7x + 2 = 0$$



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20. Find the value of a, b and c for the following quadratic equations by comparing with general form :

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



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21. In the quadratic equation the values of a , b and c are given. Find the values of $\alpha + \beta$ and $\alpha\beta$ in each of the following cases:

	(i)	(ii)	(iii)	(iv)
a	3	1	2	4
b	6	-3	-8	6
c	9	2	5	2



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22. Is $x = -1$ a root of the quadratic equation $x^2 - 3x - 4 = 0$



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23. What are the roots of the following quadratic equations ?

$$p^2 - 9 = 0$$



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24. What are the roots of the following quadratic equations ?

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



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25. What are the roots of the following quadratic equations ?

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



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26. Write the first step to solve each of the following quadratic equations by the method of completing square :

$$x^2 - 6x + 8 = 0$$



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27. Solve the following quadratic equations by the method of completing square :

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



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28. Write the first step to solve each of the following quadratic equations by the method of completing square :

$$m^2 - 2m - 7 = 0$$





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29. For solving quadratic equation $x^2 + 8x = -15$ by completing square method, find the third term.



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30. Find the value of the discriminant (Δ) in each of the following quadratic equations :

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



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31. Find the value of the discriminant (Δ) in each of the following quadratic equations :

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



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32. Find the value of the discriminant (Δ) in each of the following quadratic equations :

$$4m^2 - 8m + 5 = 0$$



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33. If $a=1$, $b=8$, $c=15$, find the value of $b^2 - 4ac$.



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34. Form quadratic equations from the information given below :

- (i) The sum of seven times a natural number (x) and its square is 60.



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35. The sum of a number and its reciprocal is $\frac{10}{3}$, find the number(s).



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36. If one root of the quadratic equation $x^2 - 7x + k = 0$ is 2, find the value of k .



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37. If $x = -4$ is one of the roots of the quadratic equation $kx^2 + 5x - 12 = 0$, find the value of

k.



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38. Solve the quadratic equation $9x^2 - 100 = 0$ by factorisation method.



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39. Find the third term to make the LHS of the equation $m^2 - 3m = 1$ a perfect square.



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40. Find the value of the discriminant of each of the following quadratic equations :

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



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41. Find the value of the discriminant of each of the following quadratic equations :

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



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42. Find the value of the discriminant of each of the following quadratic equations :

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



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43. Find the value of the discriminant of each of the following quadratic equations :

$$2x^2 + 5\sqrt{3}x + 6 = 0$$



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44. Find the value of the discriminant of each of the following quadratic equations :

$$9x^2 - 1 = 0$$



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45. Determine the nature of the roots of the following equations from their discriminants :

$$4x^2 + 12x + 9 = 0$$



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46. Determine the nature of the roots of the following equations from their discriminants :

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



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47. Determine the nature of the roots of the following equations from their discriminants :

$$\sqrt{3}x^2 + 10x - 8\sqrt{3} = 0$$



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48. Determine the nature of the roots of the following equations from their discriminants :

$$2x^2 + 5\sqrt{3}x + 6 = 0$$



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49. Determine the nature of the roots of the following equations from their discriminants :

$$x^2 + x + 2 = 0$$



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50. Determine the nature of the roots of the following equations from their discriminants :

$$3x^2 + 5x - 4 = 0.$$



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51. Find the values of $\alpha + \beta$ and $\alpha\beta$ for the following quadratic equations :

$$4x^2 + 12x + 9 = 0$$



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52. Find the values of $\alpha + \beta$ and $\alpha\beta$ for the following quadratic equations :

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



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53. Find the values of $\alpha + \beta$ and $\alpha\beta$ for the following quadratic equations :

$$x^2 + x + 2 = 0$$



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54. Find the values of $\alpha + \beta$ and $\alpha\beta$ for the following quadratic equations :

$$2x^2 - 7x - 22 = 0$$



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55. Form the quadratic equation, if the roots are

$$-2 \text{ and } -3$$



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56. Form the quadratic equation, if the roots are

$$\frac{1}{2} \text{ and } -4$$



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57. Form the quadratic equation, if the roots are

$$-\frac{1}{2} \text{ and } \frac{1}{3}$$



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58. Form the quadratic equation, if the roots are

$$\frac{2}{3} \text{ and } \frac{3}{2}$$



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59. Form the quadratic equation, if the roots are

3 and 8



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60. Form the quadratic equation, if the roots are

4 and -12



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61. Form the quadratic equation, if the sum of the roots is 24 and the product of the roots is 140.



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62. Complete the following activity to solve the quadratic equation $\sqrt{3}x^2 + 4x - 7\sqrt{3} = 0$ by factorisation method:



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63. One of the roots of the quadratic equation $kx^2 - 3x - 1 = 0$ is $\frac{1}{2}$. Complete the following activity to find the value of k.



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64. Solve the following quadratic equations by factorisation method : $3x^2 = 2x + 8$



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65. Solve the following quadratic equations by factorisation method :

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



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66. Solve the following quadratic equations by factorisation method :

$$x^2 - 5x - 36 = 0$$



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67. Solve the following quadratic equations by factorisation method :

$$7y = -3y^2 - 4$$



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68. Solve the following quadratic equations by the method of completing square :

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



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69. Solve the quadratic equation $x^2 - 12x + 32 = 0$ by completing square method:



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70. Solve the following quadratic equations by the method of completing square :

$$6x^2 + x = 2$$



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71. Solve the following quadratic equations by the method of completing square :

$$x^2 = 3 + 4x$$



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72. If α and β are the roots of the quadratic equation $x^2 - 4x - 6 = 0$, find the values of $\alpha^2 + \beta^2$.



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73. If α and β are the roots of the quadratic equation $x^2 - 4x - 6 = 0$, find the values of $\alpha^3 + \beta^3$.



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74. If $x=4$ is one of the roots of the quadratic equation $3x^2 + kx - 2 = 0$, find the value of k .



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75. Solve the following problems :

Yogesh requires 3 days more than Vivek to do a work. If both of them work together, the work can be completed in 2 days. Find the number of days required by each of them to complete the work.



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76. Solve the following problems :

The product of two consecutive even natural numbers is 120. Find the numbers.



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77. Solve the following problems :

The difference between the square of a

natural number and the number itself is 110.

Find the number.



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78. Write the quadratic equation

$\frac{p^2 + 5}{3p^2} = -7$ in the standard form. Find the

value of its discriminant. Write the nature of its roots.



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79. With the help of the flow chart given below, solve the equation $x^2 + 2\sqrt{2}x - 6 = 0$ using the formula :



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80. Ashok wants to go by car from village A to village B. He can (i) go straight from A to B (ii) first go to C due east and then from C to B due north. The distance between A and B exceeds the distance A and C by 9 km. The distance

between A and B is 9 km less than twice the distance between B and C. Ashok decides to go straight from A to B. Find the distance between (i) A and B (ii) A and C (iii) C and B.



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81. If $\alpha + \beta = 5$ and $\alpha^3 + \beta^3 = 35$, find the quadratic equation whose roots are α and β .



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82. State whether $x = \frac{-k}{2}$ is root of the quadratic equation $2x^2 + (k - 6)x - 3k = 0$.



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83. Solve the following quadratic equation by factorisation method:

(xviii) $6\sqrt{3}x^2 + 7x = \sqrt{3}$.



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84. Solve the following quadratic equations by factorisation method :

$$x^2 - 3\sqrt{3}x + 6 = 0$$



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85. Solve the following quadratic equations by factorisation method :

$$y^2 + 2\sqrt{3}y - 9 = 0$$



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86. Solve the following quadratic equations

using formula : $2x^2 + \frac{x - 1}{5} = 0$



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87. Solve the following quadratic equations

using formula :

$$9x + 1 = 4x^2$$



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88. Solve the following quadratic equations
using formula :

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



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89. Solve the following quadratic equations by
completing square :

$$5m^2 + m = 3$$



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90. Solve the following quadratic equations by completing square :

$$x(x - 1) = 1$$



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91. Solve the following quadratic equations by completing square :

$$3p^2 + 7p + 1 = 0.$$



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92. Solve the following problems :

(i) The product of four consecutive natural numbers is 840 . Find the numbers.



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93. Solve the following problems :

(ii) A passenger train takes 2 hours more than an express train to travel a distance of 240 km.

The speed of the express train is more than that of passenger train by 20 km/h. Find the speed of both the trains.



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94. Solve the following problems :

(iii) The distance between Akola and Bhusaval is 168 km. An express train 1 hour less than a passenger train to cover that distance. Find the average speed of each train, if the average speed of the express train is more by 14 km/h than the speed of the passenger train.



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95. Solve the following problems :

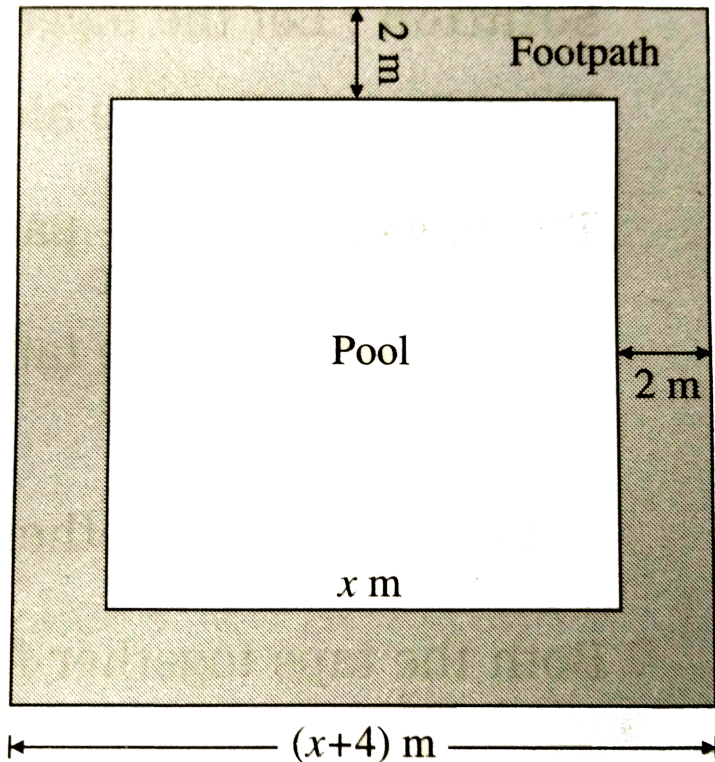
(iv) If the cost of bananas is increases by Rs 2 per dozen, one can get one dozen less bananas for RS 840. Find the original cost of one dezen bananas.



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96. Around a square pool, there is a footpath of width $2m$. If the area of the foothpath is $\frac{5}{4}$ times that of the pool, find the area of the

pool.



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Practice Set 2 1

1. Write any two quadratic equations.



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2. Decide which of the following are quadratic equations :

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



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3. Decide which of the following are quadratic equations :

$$y^2 = 5y - 10$$



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4. Decide which of the following are quadratic equations :

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



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5. Decide which of the following are quadratic equations :

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



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6. Decide which of the following are quadratic equations :

$$(m + 2)(m - 5) = 0$$



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7. Decide which of the following are quadratic equations :

$$m^3 + 3m^2 - 2 = 3m^3$$



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8. Write the following equatratic equations in the form $ax^2 + bx + c = 0$. Write the value of a, b, c, for each equation.

$$2y = 10 - y^2$$



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9. Write the following equatratric equations in the form $ax^2 + bx + c = 0$. Write the value of a, b, c, for each equation.

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



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10. Write the following equatratric equations in the form $ax^2 + bx + c = 0$. Write the value of a, b, c, for each equation.

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



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11. Write the following equatratric equations in the form $ax^2 + bx + c = 0$. Write the value of a, b, c, for each equation.

$$3m^2 = 2m^2 - 9$$



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12. Write the following equatratric equations in the form $ax^2 + bx + c = 0$. Write the value of

a, b, c, for each equation.

$$p(3 + 6p) = -5$$



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13. Write the following equatratric equations in the form $ax^2 + bx + c = 0$. Write the value of a, b, c, for each equation.

$$x^2 - 9 = 13$$



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14. Determine whether the values given against each of the quadratic equations are the roots of the quadratic equation or not :

$$x^2 + 4x - 5 = 0, x = 1, -1$$



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15. Determine whether the values given against each of the quadratic equations are the roots of the quadratic equation or not :



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16. Find k if $x=3$ is a root of equation $kx^2 - 10x + 3 = 0$.



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17. One of the roots of equation $5m^2 + 2m + k = 0$ is $-\frac{7}{5}$. Complete the following activity to find the value of ' k '.



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Practice Set 2 2

1. Solve the following quadratic equations by factorization.

$$x^2 - 15x + 54 = 0$$



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2. Solve the following quadratic equations by factorisation method:

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



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3. Solve the following quadratic equations by factorisation method:

$$2y^2 + 27 + 13 = 0$$



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4. Solve the following quadratic equations by factorization.

$$5m^2 = 22m + 15$$



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5. Solve the following quadratic equations by factorisation method:

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



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6. Solve the following quadratic equations by factorisation method:

$$6x - \frac{2}{x} = 1$$



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7. Complete the following activity to solve the quadratic equation $\sqrt{2}x^3 + 7x + 5\sqrt{2} = 0$ by factorisation method :



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8. Complete the following activity to solve the quadratic equation by factorisation method :

$$3x^2 - 2\sqrt{6}x + 2 = 0$$



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9. Solve the following quadratic equations by factorization.

$$2m(m-24)=50$$



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10. Complete the following activity to solve the quadratic equation by factorisation method :

$$25m^2 = 9$$



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11. Complete the following activity to solve the quadratic equation $\sqrt{2x^3} + 7x + 5\sqrt{2} = 0$ by factorisation method :



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12. Complete the following activity to solve the quadratic equation $\sqrt{2x^3} + 7x + 5\sqrt{2} = 0$ by factorisation method :



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Practice Set 2 3

1. Solve the following quadratic equations by completing square method :

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



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2. Solve the following quadratic equations by completing square method :

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



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3. Solve the following quadratic equations by completing square method :

$$m^2 - 5m = -3$$



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4. Solve the following quadratic equations by completing the square method.

$$9y^2 - 12y + 2 = 0$$



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5. Solve the following quadratic equations by completing square method :

$$2y^2 + 9y + 10 = 0$$



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6. Solve the following quadratic equations by completing square method :

$$5x^2 = 4x + 7$$



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Practice Set 2 4

1. Find the values of a,b,c for the following quadratic equations by comparing with standard form :

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



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2. Find the values of a,b,c for the following quadratic equations by comparing with

standard form :

$$2m^2 = 5m - 5$$



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3. Find the values of a,b,c for the following quadratic equations by comparing with standard form :

$$y^2 = 7y$$



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4. Solve using formula.

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



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5. Solve the following quadratic equations by using formula method :

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



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6. Solve the following quadratic equations by using formula method :

$$3m^2 + 2m - 7 = 0$$



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7. Solve the following quadratic equations by using formula method :

$$5m^2 - 4m - 2 = 0$$



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8. Solve the following quadratic equations by using formula method :

$$y^2 + \frac{1}{3}y = 2$$



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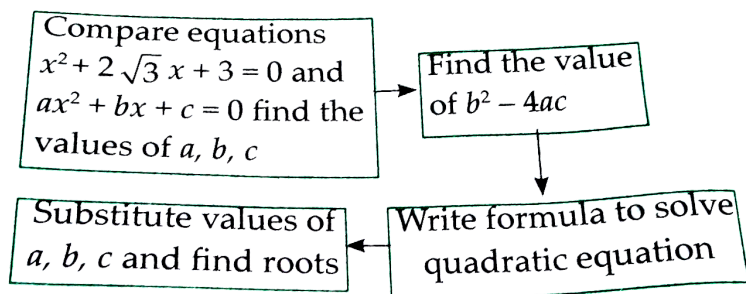
9. Find the roots of the quadratic equations by using the quadratic formula in each of the following

$$5x^2 + 13x + 8 = 0$$



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10. With the help of the flow chart given below solve the equation $x^2 + 2\sqrt{3}x + 3 = 0$ using formula.



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Practice Set 2 5

1. Find the values of the discriminant for the following quadratic equations :

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



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2. Find the value of discriminant.

$$2y^2 - 5y + 10 = 0$$



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3. Find the values of the discriminant for the following quadratic equations :

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



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4. Determine the nature of the roots of the following quadratic equations from their discriminants :

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



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5. Determine the nature of roots of the following quadratic equations.

$$2y^2 - 7y + 2 = 0$$



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6. Determine the nature of roots of the following quadratic equations.

$$m^2 + 2m + 9 = 0$$



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7. Form the quadratic equation, if the roots are : (1) 0 and 4



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8. Form the quadratic equation, if the roots are : (1) 0 and 5

3 and -10



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9. Form the quadratic equation, if the roots are : (1) 0 and 6

$$\frac{1}{2}, -\frac{1}{2}$$



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10. Form the quadratic equation, if the roots are : (1) 0 and 7

$$2 - \sqrt{5}, 2 + \sqrt{5}$$



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11. Sum of the roots of a quadratic equation is double their product. Find k if equation is

$$x^2 - 4kx + k + 3 = 0.$$



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12. α, β are roots of $y^2 - 2y - 7 = 0$ find,

(i) $\alpha^2 + \beta^2$

(ii) $\alpha^3 + \beta^3$



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13. The roots of the each of the following quadratic equations are real and equal, find k .

$$3y^2 + ky + 12 = 0$$



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14. Find the values of k for which the roots are real and equal in the following equations:

$$kx(x - 2) + 6 = 0 \text{ (ii) } x^2 - 4kx + k = 0$$



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Practice Set 2 6

1. Product of Pragati's age 2 years ago and 3 years hence is 84. Find her present age.



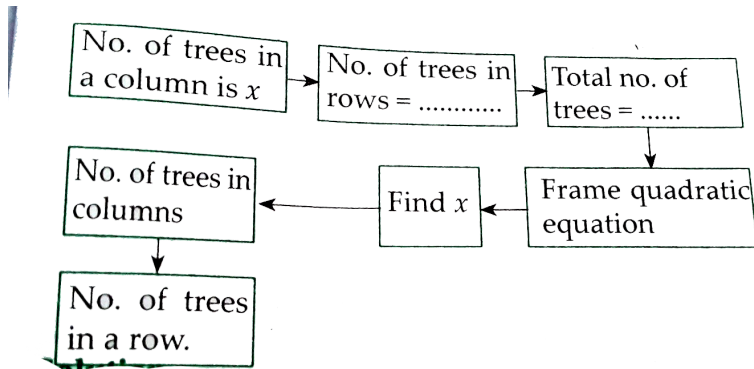
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2. The sum of squares of two consecutive even natural number is 244. Find the numbers.



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3. In the orange garden of Mr. Madhusudan there are 150 orange trees. The number of trees in each rows are 5 more than that in each column. Find the number of trees in each rows and each column with the help of following flow chart.



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4. Vivek is older than Kishor by 5 years. The sum of the reciprocals of their ages is $\frac{1}{6}$. Find their present age.



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5. Suyash scored 10 marks more in second test than that in first. 5 times the score of the second test is same as square of the score in first test. Find his score in first test.



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6. Mr. Kasam runs a small business of making earthen pots. He makes certain number of pots on daily basis. Production cost of each pot is Rs. 40 more than 10 times total number of pots, he makes in one day. If production cost of all pots per day is Rs. 600, find production cost of one pot and number of pots he makes per day.



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7. A man travels by boat 36 km down a river and back in 8 hours. If the speed of his boat in still water is 12 km/hr, find the speed of the river current.



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8. Pintu takes 6 days more than those of Nishu to complete certain work. If they work together they finish it in 4 days. How many days would

it take to complete the work if they work alone.

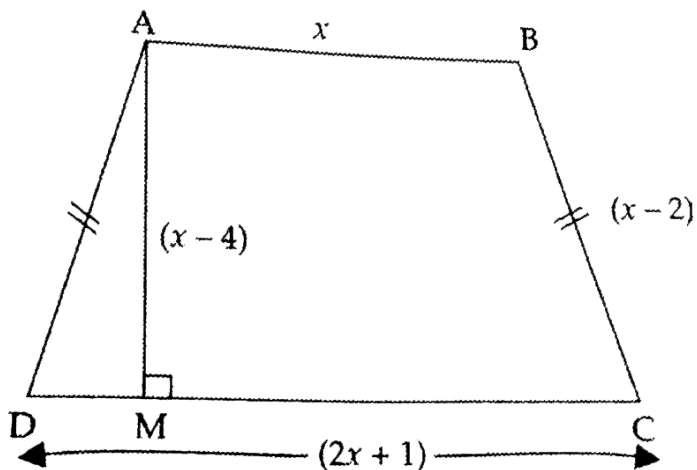


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9. If 460 is divided by a natural number, quotient is 6 more than 5 times the divisor and remainder is 1 then find quotient and divisor.



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10.

In the above fig. \square ABCD is a trapezium $AB \parallel CD$ and its area is 33 cm^2 . From the information given in the figure, find the lengths of all sides of the \square ABCD. Fill in the empty boxes to get the solution.



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Problem Set 2

1. Which of the following is a quadratic equation?

A. $\frac{5}{x} - 3 = x^2$

B. $x(x + 5) = 2$

C. $n-1=2n$

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

Answer: $x(x + 5) = 2$;



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Problem Set 3

1. Which of the following is not a quadratic equation ?

A. $x^2 + 4x = 11 + x^2$

B. $x^2 = 4x$

C. $5x^2 = 90$

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

Answer: $x^2 + 4x = 11 + x^2$



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Problem Set 4

1. What is the value of k , if the roots of $x^2 + kx + k = 0$ are real and equal ?

A. 0

B. 4

C. 0 or 4

D. 2

Answer: 0 or 4;



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Problem Set 5

1. Which of the following is the value of the discriminant of $\sqrt{2}x^2 - 5x + \sqrt{2} = 0$

A. -5

B. 17

C. $\sqrt{2}$

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

Answer: B



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Problem Set 6

1. Which of the following equations has roots 3 and 5,

A. $x^2 - 15x + 8 = 0$

B. $x^2 - 8x + 15 = 0$

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

D. $x^2 + 8x - 15 = 0$

Answer: $x^2 - 8x + 15 = 0$



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Problem Set 7

1. Which of the following equations has the sum of the roots -5 ?

A. $3x^2 - 15x + 3 = 0$

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

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

D. $x^2 + 8x - 15 = 0$

Answer: $x^2 + 8x - 15 = 0$



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Problem Set 8

1. $\sqrt{5}m^2 - \sqrt{5}m + \sqrt{5} = 0$. Which of the following statements is true for this given equation?

A. The roots are real and unequal

B. The roots are real and equal

C. The roots are not real

D. Three roots $\Delta = (-5)^2 - 4(\sqrt{5})(\sqrt{5})$
 $= 5 - 20 = -15$

$$\therefore \Delta < 0$$

Answer: The roots are not real.



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Problem Set 9

1. One of the roots of equation $x^2 + mx - 5 = 0$ is 2 find m.

A. -2

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

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

D. 2

Answer: $\frac{1}{2}$



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Problem Set 10

1. Which of the following are quadratic equations?

$$x^2 + 2x + 11 = 0$$



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Problem Set 11

1. Which of the following are quadratic equations?

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



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Problem Set 12

1. Which of the following are quadratic equations?

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



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Problem Set 13

1. Find the value of discriminant for each of the following equations.

$$2y^2 - y + 2 = 0$$



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Problem Set 14

1. Find the value of discriminant for each of the following equations.

$$5m^2 - m = 0$$



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Problem Set 15

1. Find the value of discriminant for each of the following equations.

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



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Problem Set 16

1. If one root of the quadratic equation

$2x^2 + kx - 2 = 0$ is -2, find the value of k.

A.

B.

C.

D.

Answer: The value of k is 3.



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Problem Set 17

1. Two roots of quadratic equations are given,
frame the equation.

10 and -10



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Problem Set 18

1. Two roots of quadratic equations are givne,
frame the equation :

$$1 - 3\sqrt{5} \text{ and } 1 + 3\sqrt{5}$$



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2. Two roots of quadratic equations are given,
frame the equation.

0 and 7



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3. Determine the nature of roots for each of
the quadratic equations.

$$3x^2 - 5x + 7 = 0$$



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4. Determine the nature of the roots for each of the following quadratic equations.

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



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5. Determine the nature of roots for each of the quadratic equations.

$$m^2 - 2m + 1 = 0$$



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6. Solve the following quadratic equations :

$$\frac{1}{x + 5} = \frac{1}{x^2}$$



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7. Solve the following quadratic equations:

$$x^2 - \frac{3x}{10} - \frac{1}{10} = 0$$



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8. Solve the following quadratic equations:

$$(2x + 3)^2 = 25$$



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9. Solve the following quadratic equations :

$$m^2 + 5m + 5 = 0$$



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10. Solve the following quadratic equations :

$$5m^2 + 2m + 1 = 0$$



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11. Solve the following quadratic equations :

$$x^3 - 4x - 3 = 0$$



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12. Find m , if the quadratic equation $(m - 12)x^2 + 2(m - 12)x + 2 = 0$ has real and equal roots.



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13. The sum of two roots of a quadratic equation is 5 and the sum of their cubes is 35. Find the equation.



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14. Find quadratic equation such that its roots are square of sum of the roots and square of difference of the roots of equation

$$(2x^2 + 2(p + q)x + p^2 + q^2 = 0$$



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15. Mukund possesses RS 50 more than what Sagar possesses. The product of the amount they have is numerically RS 15000. Find the amount each has.



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16. The difference between the squares of two numbers is 120. The square of the smaller number is twice the greater number. Find the numbers.



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17. Mr. Dinesh owns an agricultural farm at village Talvel. The length of the farm is 10 meter more than twice the breadth. In order

to harvest rain water, he dug a square shape pond inside the farm. The side of pond is $\frac{1}{3}$ times of the breadth of the farm. The area of the farm is 20 times the area of the pond. Find the length and breadth of the farm and of the pond.



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Activity

1. One of the roots of the quadratic equation $kx^2 - 14x - 5 = 0$ is 5. Complete the following activity to find the value of k .



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2. Factorize the following polynomials:

$$(1) x^2 - 4x - 5$$

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

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

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





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3. Factorize the following polynomials:

$$2m^2 - 5m$$

$$= m(2m - 5)$$



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4. Factorize the following polynomials:

$$a^2 - 25$$

$$= (a)^2 - (5)^2$$

$$= (a + 5)(a - 5)$$



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5. The equation $2x^2 + 13x + 15 = 0$ by
factorisation method



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6. The equation $2x^2 + 13x + 15 = 0$ by
completing the square method



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7. The equation $2x^2 + 13x + 15 = 0$ by using formula.

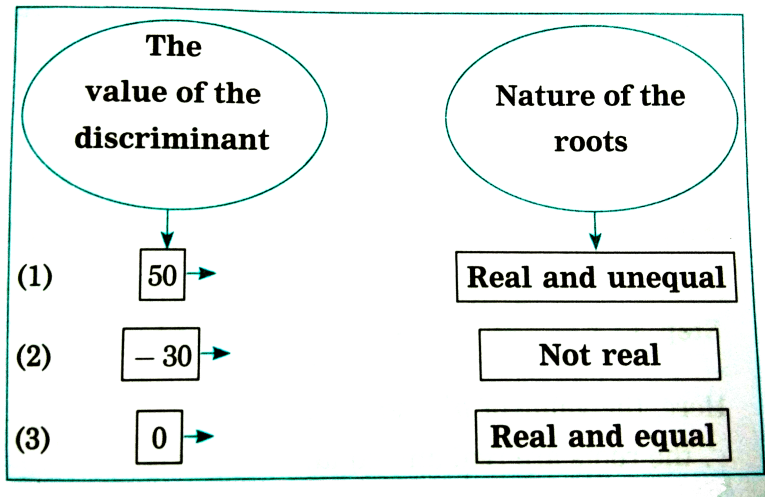
Verify that you will get the same roots every time.



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8. Fill in the blanks from the given information

:



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9. If sum of the roots of quadratic equations is 10 and the product is 9, then form the quadratic equation:



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10. What is the quadratic equation having the root $\alpha = 2$ and $\beta = 5$.

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

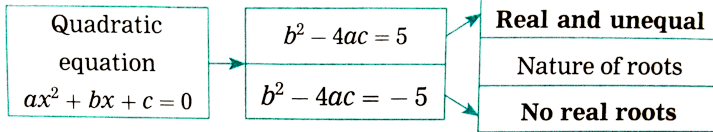
i.e. $x^2 - 7x + 10 = 0$.



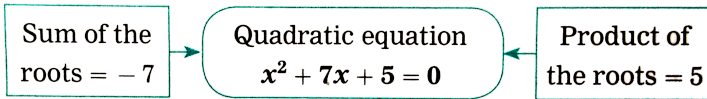
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11. Fill in the blanks and complete :

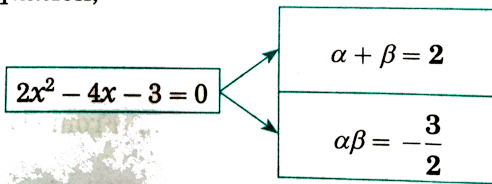
(1)



(2)



(3) If α and β are the roots of the following quadratic equation,



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Challengin Questions

1. Six years before, the age of mother was numerically equal to the square of son's age. Three years hence, her age will be thrice the age of her son then. Find the present ages of the mother and son.



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2. Solve : $\frac{x^{2002} + 10x^{2001}}{10x^{2000}} = 957.9$



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