



MATHS

BOOKS - FULL MARKS MATHS (TAMIL ENGLISH)

SOLVED PAPER 08 (UNSOLVED)

Part I

1. If the ordered pairs $(a + 2, 4)$ and $(5, 2a + b)$ are equal to then (a, b) is

A. $(2, -2)$

B. (5,1)

C. (2,3)

D. (3,-2)

Answer:



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2. $f(x) = (x + 1)^3 - (x - 1)^3$ represents a
functions which is

A. linear

B. cubic

C. reciprocal

D. quadratic

Answer:



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3. Using Euclid's division lemma, if the cube of any positive integers is divided by 9 then the possible remainders are ___.

A. 0,1,8

B. 1,4,8

C. 0,1,3

D. 1,3,5

Answer:



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4. If the sequence t_1, t_2, t_3, \dots are in A.P. then the sequence $t_6, t_{12}, t_{18}, \dots$ is

A. a Geometric progression

B. an Arithmetic progression

C. neither an Arithmetic progression nor a geometric progression

D. a constant sequence

Answer:



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5. $\frac{3y - 3}{y} \div \frac{7y - 7}{3y^2}$ is

A. $\frac{9y}{7}$

B. $\frac{9y^3}{(21y - 21)}$

C. $\frac{21y^2 - 42y + 21}{3y^3}$

D. $\frac{7(y^2 - 2y + 1)}{y^2}$

Answer: A



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6. The solution of $(2x - 1)^2 = 9$ is equal to

A. -1

B. 2

C. -1

D. None of these

Answer: B



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7. In

$\triangle LMN$, $\angle L = 60^\circ$, $\angle M = 50^\circ$, If $\triangle LMN \sim \triangle PQR$

then the value of $\angle R$ is

A. 40°

B. 70°

C. 30°

D. 110°

Answer:



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8. A tower is 60 m height. Its shadow is x metres shorter when the sun's altitude is 45° than when it has been 30° , then x is equal to

A. 41.92 m

B. 43.92 m

C. 43 m

D. 45.6 m

Answer: B



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9. A shuttle cock used for playing badminton has the shape of the combination of

- A. a cylinder and a sphere
- B. a hemisphere and a cone
- C. a sphere and a cone
- D. frustum of a cone and a hemisphere

Answer:



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10. Which of the following is not a measure of dispersion ?

A. Range

B. Standard deviation

C. Arithmetic mean

D. Variance

Answer:



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11. Variance of first 20 natural numbers is

A. 32.25

B. 44.25

C. 33.25

D. 30

Answer:



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12. The equation of a straight line having slope 3 and

Y intercept -4 is

A. $3x - y + 4 = 0$

B. $3x + y - 4 = 0$

C. $3x - y + 4 = 0$

D. $3x - y - 4 = 0$

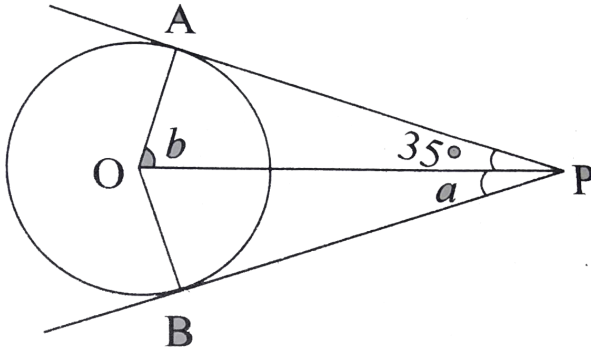
Answer:



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13. In the given diagram PA and PB are tangents drawn from P to a circle with centre O.

$\angle OPA = 35^\circ$ then a and b is



A. $a = 30^\circ, b = 60^\circ$

B. $a = 35^\circ, b = 55^\circ$

C. $a = 40^\circ, b = 50^\circ$

D. $a = 45^\circ, b = 45^\circ$

Answer:



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14. If $[-1-2 \ 4] \begin{bmatrix} 2 \\ a \\ -3 \end{bmatrix} = -10$ then the value of "a" is

..... .

A. 2

B. -4

C. 4

D. -2

Answer:



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1. Show that the function $f: N \rightarrow N$ defined by $f(m) = m^2 + m + 3$ is one-one function.



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2. If the ordered pairs $(x^2 - 3x, y^2 + 4y)$ and $(-2, 5)$ are equal to then find x and y .



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3. If x is congruent to 13 modulo 17 then $7x - 3$ is congruent to which number modulo 17?



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4. How many terms of the series $1+4 +16+ \dots$ make the sum 1365?



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5. Find the LCM of each pair of the following polynomials

$x^4 - 27a^3x$, $(x - 3a)^2$ whose GCD is $(x-3a)$



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6. Reduce the given Rational expression to its lowest form

$$\frac{x^{3a} - 8}{x^{2a} + 2x^a + 4}$$



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7. Find the value of x, y, z if

$$[x \ y - z \ z + 3] + [y \ 4 \ 3]$$



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8. Find the equation of a straight line which has slope $\frac{-5}{4}$ and passing through the point $(-1, 2)$.



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9. A road is flanked on either side by continuous rows of house of height $4\sqrt{3}$ m with no space in between them. A pedestrain is standing on the median of the road facing a row house. The angle of elevationn from the pedestrain to the top of the house is 30° . Find the width of the road.



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10. If the standard deviation of a data is 3.6 and each value of the data is divided by 3, then find the new variance and new standard deviation.



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11. If -4 is a root of the equation $x^2 + px - 4 = 0$ and if the equation $x^2 + px + q = 0$ are equal roots, find the values of p and q.



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12. A shopkeeper has one spherical laddoo of radius 5 cm. With the same amount of material how many laddoos of radius 2.5 cm can made?

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13. If $P(A) = \frac{1}{2}$, $P(B) = \frac{7}{10}$, $(P \cup B) = 1$ find $P(A' \cap B')$

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Part iii

1. If $X = \{-5, 1, 3, 4\}$ and $Y = \{a, b, c\}$, then which of the following relations are function from X to Y ?

(i) $R_1 = \{(-5, a), (1, a), (3, b)\}$

(ii) $R_2 = \{(-5, b), (1, b), (3, a), (4, c)\}$

(iii) $R_3 = \{(-5, a), (1, a), (3, b), (4, c), (1, b)\}$



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2. If $f(x) = x^2$, $g(x) = 3x$ and $h(x) = x - 2$.

Prove that $(f \circ g) \circ h = f \circ (g \circ h)$.



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3. The 104th term and 4th term of an A.P. are 125 and 0. Find the sum of first 35 terms.



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4. There are 12 pieces of five, ten and twenty rupee currencies whose total value is ₹105. When first 2 sorts are interchanged in their numbers its value will be increased by ₹20. Find the number of currencies in each sort.



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5. If $9x^4 + 12x^3 + 28x^2 + ax + b$ is a perfect squares. Find the value of a and b.

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6. Find X and Y if $X + Y = \begin{pmatrix} 7 & 0 \\ 3 & 5 \end{pmatrix}$ and $X - Y = \begin{pmatrix} 3 & 0 \\ 0 & 4 \end{pmatrix}$

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7. In $\triangle ABC$, with $\angle B = 90^\circ$, $BC=6$ cm and $AB=8$ cm, D is a point on AC such that $AD=2$ cm and E is the

midpoint of AB. Join D to E and extend it to meet at F. Find BF.



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8. Find the equation of a straight line joining the point of intersection of $3x + y + 2 = 0$ and $x - 2y - 4 = 0$ to the point of intersection of $7x - 3y = -12$ and $2y = x + 3$.



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9. A man standing on the deck of a ship, which is 10m above water level. He observes the angle of elevation of the top of a hill as 60° and the angle of depression of the base of the hill as 30° . Calculate the distance of the hill from the ship and the height of the hill.



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10. Find the number of coins, 1.5 cm in diameter and 0.2 cm thick, to be melted to form a right circular cylinder of height 10 cm and diameter 4.5 cm.



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11. A two digit number is such that the product of its digits is 18. When 63 is subtracted from the number, the digits interchange their places. Find the number.



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12. The sum of 5th and 9th term of an A.P. is 72 and the sum of 7th and 12th terms is 97 . Find that



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1. Construct a triangle similar to a given triangle LMN with its sides equal to $\frac{4}{5}$ of the corresponding sides of the triangle LMN (scale factor $\frac{4}{5}$).



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2. Draw the two tangents from a point which is 10 cm away from the centre of a circle of radius 5 cm. Also, measure the lengths of the tangents.



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3. Draw the graph of $y = x^2 - 4$ and hence solve

$$x^2 - x - 12 = 0.$$



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