



MATHS

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER 5

Part A Section I

1. Find irrational number between 2 and 3.



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2. Reduce the equation

$$y(2y + 15) = 3(y^2 + y + 8)$$

to the standard form.



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3. The n^{th} term of an A.P. cannot be $n^2 + 1$.

Justify the statement.



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4. Check whether $x = 2$ and $y = 3$ the solution of the pair of linear equations:

$$x - 3y = 2, 6y - 2x = 5$$



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5. Find the distance between $(7,0)$ and $(1, - 8)$.



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6. A line of length 10 units has one end at the point $(-3,2)$. If the ordinate of the other end is 10, show that the abscissa will be 3 or -9.



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7. If $\triangle ABC$ is similar to $\triangle DEF$, such that $\angle A = 47^\circ$ and $\angle E = 83^\circ$, then what is the value of $\angle C$?



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8. Find the zeros of $2x^2 - x - 45$.



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9. If $\cot A + \frac{1}{\cot A} = 2$, then $\cot^2 A + \frac{1}{\cot^2 A}$ is equal to



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10. If $\sin A = \frac{1}{2}$ then what is the value of $(\cot A - \cos A)$?





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11. From a group of 4 girls and 6 boys, a child is selected. Find the probability that the selected child is a girl.



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12. What is the perimeter of a quadrant of a circle of radius 'r' ?



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13. The total surface area of a solid hemisphere of radius r is



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14. What is the upper limit of the median class for the given below distribution?

Class interval	0-5	5-10	10-15	15-20	20-25
Frequency	13	10	15	8	11



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15. Two coins are tossed simultaneously. Find the probability of getting at least one head.



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16. A cubic polynomial can have at most how many zeros?



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17. Find the next term of the AP $\sqrt{3}, \sqrt{27}, \sqrt{75}$

.....



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18. Write the nature of roots of the quadratic equation $ax^2 - 3bx - 4a = 0 (a \neq 0)$?



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19. State the AA criterion of similarity of triangles.



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20. If in $\triangle ABC$, $\angle B = 90^\circ$, $AB = 6\sqrt{3}$ and $AC = 12$, find BC .



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21. From a point Q , the length of the tangent to a circle is 12 cm and distance of d from the centre is 13 cm. Find the radius of the circle.



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Part A Section II

1. Satellite TV manufacturing businesses tend to have what economists call "economies of scale." When economies of scale exist, bigness

can be its own reward. The more TV's you manufacture in a single run, lower the costs per unit, which in turn increases your bottom-line margins.

Keeping that in mind, a T.V. manufacturing company increases its production uniformly by fixed number every year. The company produces 8000, sets in the 6th year and 11,300 sets in the 9th year.

The company's production of the first year is:

A. 2000

B. 2500

C. 3000

D. 5000

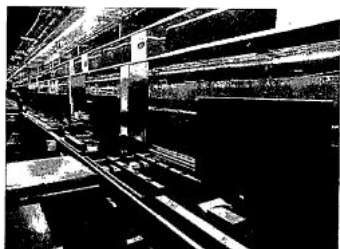
Answer: B



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2. Satellite TV manufacturing businesses tend to have what economists call "economies of scale." When economies of scale exist, bigness can be its own reward. The more TV's you manufacture in a single run, lower the costs

per unit, which in turn increases your bottom-line margins.



Keeping that in mind, a T.V. manufacturing company increases its production uniformly by fixed number every year. The company produces 8000, sets in the 6th year and 11,300 sets in the 9th year.

The company's production of the 8th year is:

A. 9600

B. 9800

C. 10200

D. 10500

Answer: C



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3. Satellite TV manufacturing businesses tend to have what economists call "economies of scale." When economies of scale exist, bigness can be its own reward. The more TV's you

manufacture in a single run, lower the costs per unit, which in turn increases your bottom-line margins.



Keeping that in mind, a T.V. manufacturing company increases its production uniformly by fixed number every year. The company produces 8000, sets in the 6th year and 11,300 sets in the 9th year.

The company's total production of the first 6 years is:

A. 28950

B. 30150

C. 30250

D. 31500

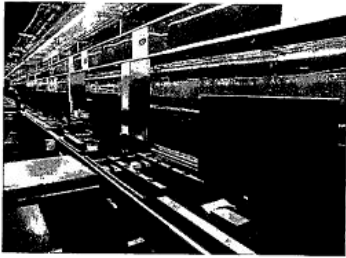
Answer: D



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4. Satellite TV manufacturing businesses tend to have what economists call "economies of scale." When economies of scale exist, bigness

can be its own reward. The more TV's you manufacture in a single run, lower the costs per unit, which in turn increases your bottom-line margins.



Keeping that in mind, a T.V. manufacturing company increases its production uniformly by fixed number every year. The company produces 8000, sets in the 6th year and 11,300 sets in the 9th year.

The company's production increases every year by:

A. 2500

B. 2200

C. 1800

D. 1100

Answer: D



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5. In an A.P., the 6^{th} term is 8000 and the 9^{th} term is 11300, then which term is 9100?

A. 5^{th}

B. 6^{th}

C. 7^{th}

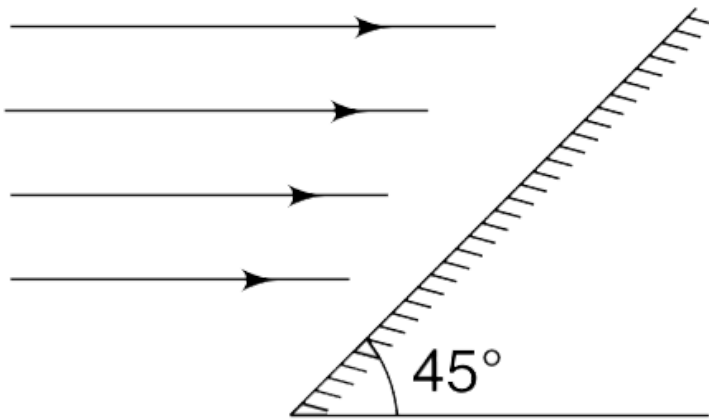
D. 9^{th}

Answer: C



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6. A horizontal beam of light is incident on a plane mirror inclined at 45° to the horizontal. The percentage of light energy reflected from the mirror is 80% . Find the direction in which the mirror will experience force due to the incident light.



A. 11 m

B. 14 m

C. 17 m

D. 22 m

Answer: B



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7. If $y = \tan^{-1}(\sec x - \tan x)$, then

differentiation of y wrt x is equal to = ?

A. $24\sqrt{3}m$

B. $24\sqrt{2}m$

C. 24 m

D. 12 m

Answer: C



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8. If $y = \tan^{-1}(\sec x - \tan x)$, then

differentiation of y wrt x is equal to = ?

A. $(24\sqrt{3} - 11)m$

B. $(24\sqrt{2} - 14)m$

C. 15 m

D. 10 m

Answer: D



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9. Find the average rate of change of the area of a circle with respect to its radius r as r changed from

(iii) 2 to 2.1

A. $24\sqrt{3}m$

B. $24\sqrt{2}m$

C. 24 m

D. 12 m

Answer: B



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10. If $y = \tan^{-1}(\sec x - \tan x)$, then
differentiation of y wrt x is equal to = ?

A. $\tan \theta = \sqrt{3}$

B. $\tan \theta = \frac{2}{\sqrt{3}}$

C. $\tan \theta = \frac{1}{2}$

D. $\tan \theta = 1$

Answer: D



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11. Jaidev takes $2\frac{1}{5}$

A. 80π sqcm

B. $82\pi sqcm$

C. $84\pi sqcm$

D. $88\pi sqcm$

Answer: C



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12. In a game 3 coins are tossed. A person is paid Rs. 5, if he gets all head or all tail and be in supposed pay Rs. 3 if he gets are head or 2

heads. What can be expected to win on an average per game.

A. 26.5π sq cm

B. 22.5π sq cm

C. 20.5π sq cm

D. 18.5π sq cm

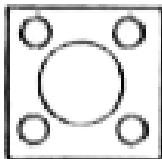
Answer: D



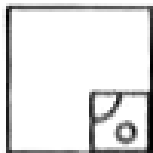
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13. A square paper is folded in a particular manner and punches are made. When unfolded the paper appears as given below. Find out the manner in which the paper was folded and punches were made.

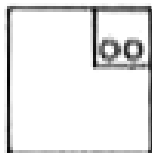
Question figure :



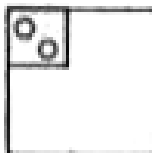
Answer figures :



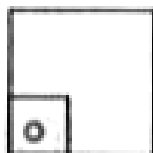
(1)



(2)



(3)



(4)

A. 92.5π sq cm

B. 89.5π sq cm

C. 85.5π sq cm

D. 72.5π sq cm

Answer: A



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14. A wooden toy rocket is in the shape of a cone mounted on a cylinder as shown in Fig. 16.36. The height of the entire rocket is 26 cm, while the height of the conical part is 6 cm.

The base of the conical portion has a diameter of 5 cm, while the base diameter of the cylindrical portion is 3 cm. If the conical portion is to be painted orange and the cylindrical portion yellow, find the area of the rocket painted with each of these colours.

(Take $\pi = 3.14$)

A. 10

B. 9.65

C. 9.84

D. 10.25

Answer: B



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15. In a game 3 coins are tossed. A person is paid Rs. 5, if he gets all head or all tail and be in supposed pay Rs. 3 if he gets are head or 2 heads. What can be expert to win on an arrange per game.

A. 1900

B. 1869

C. 1833

D. 1805

Answer: C



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Number of plants contributed	1-3	4-6	7-9	10-12	13-15	16-18
Number of houses	10	8	x	7	12	4

16.

If the mean number of plants contributed be 8.9, then how many houses contributed 7 to 9 plants?

A. 6 houses

B. 7 houses

C. 8 houses

D. 9 houses

Answer: D



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17.

Number of plants contributed	1-3	4-6	7-9	10-12	13-15	16-18
Number of houses	10	8	x	7	12	4

How many houses contributed more than 12

points?

A. 16 houses

B. 4 houses

C. 8 houses

D. 7 houses

Answer: A



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18. Solve for x and y :

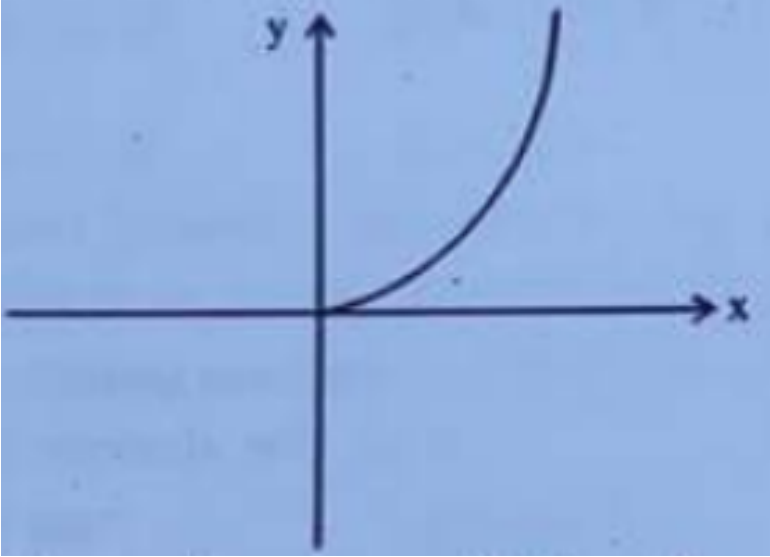
$$3x + 5y = 17$$

$$x - y = 3$$



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19. Which of the following equation is best representation of given graph's?



A. 9.77

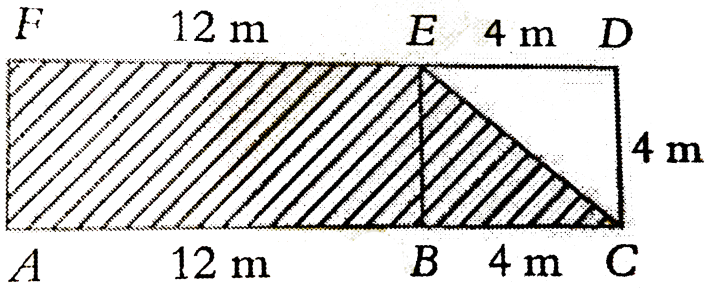
B. 10.48

C. 10.35

D. 10.15

Answer: B





20.

Find the area of the shaded part in the figure given above.

A. 3.5-6.5

B. 6.5-9.5

C. 9.5- 12.5

D. 12.5 - 15.5

Answer: B



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Part B Section Iii

1. Write the prime factorisation of 8190.



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2. Find the HCF of

$(2^5 \times 5^2 \times 11^1)$, $(3^2 \times 5^3 \times 11^2)$ and

$(2^4 \times 3^6 \times 5^1 \times 7^4)$



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3. Form a quadratic polynomial whose zeros are 5 and 4



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4. If the point $P(6,2)$ divides the line segment joining $A(6,5)$ and $B(4, y)$ in the ratio $3:1$, then find the value of y .



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5. In a right triangle ABC , right-angled at B , if $\sin(A - C) = \frac{1}{2}$ find the measures of angles A and C



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6. If $\sin \theta = \frac{2mn}{m^2 + n^2}$, find the value of $\frac{\sin \theta \cot \theta}{\cos \theta}$



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7. (i) A path of 8 m width runs around the outside of a circular park whose radius is 17 m. Find the area of the path.

(ii) A park of the shape of a circle of diameter 7m. It is surrounded by a path of width of 0.7 m. Find the expenditure of cementing the path, if its cost is Rs. 110 per sq m.



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8. A die is thrown once. Find the probability of getting (A) a prime number greater than 3 (B) an even prime number greater than 3.



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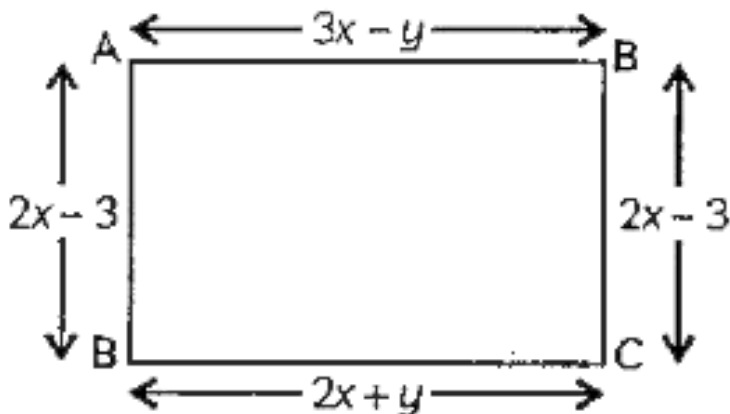
Part B Section Iv

1. Prove that: $2\sqrt{3} - 4$ is an irrational number, using the fact that $\sqrt{3}$ is an irrational number.



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2. The figure shows a rectangle with its length and breadth as indicated.

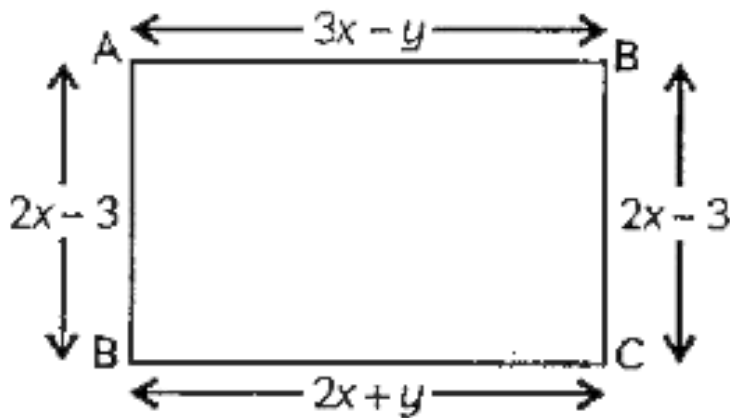


Given that the perimeter of the rectangle is

120cm , find:

the values of x and y

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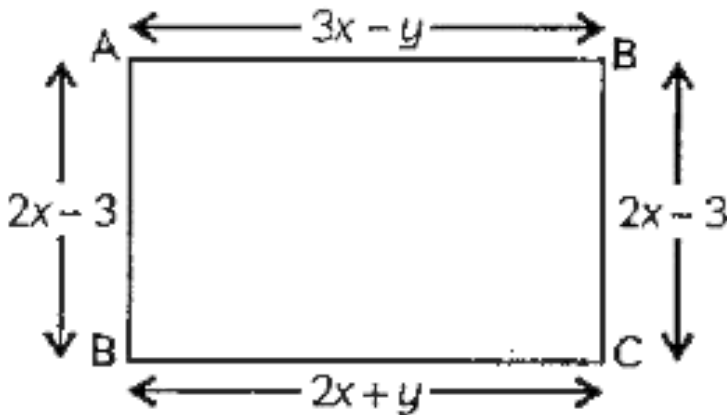
3.

Given that the perimeter of the rectangle is

120cm , find:

the length and the breadth

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4.

Given that the perimeter of the rectangle is

120cm , find:

the area of the rectangle.



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5. If $Q (0, 1)$ is equidistant from $P (5, -3)$ and $R (x, 6)$, find the values of x . Also, find the distances QR and PR .



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6. Draw a circle of radius 3 cm. Take a point P on the circle. At point P , construct a tangent to the circle.





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7. Prove that the area of the semicircle drawn on the hypotenuse of a right angled triangle is equal to the sum of the areas of the semicircles drawn on the other two sides of the triangle



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8. If the median of the distribution given below is 28.5, find the value of x and y

C.I	0-10	10-20	20-30	30-40	40-50	50-60	Total
f	5	8	x	15	y	5	60



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9. The height of a cylinder is 15 cm, its curved surface area is 660 sq cm. Find its diameter.



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10. Find the mass of a 3.5 m long lead pipe, if the external diameter of the pipe is 2.4 cm,

thickness of the metal is 2 mm and the mass of 1 cm^3 of lead is 11.4 grams.



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11. In Fig. 4.123, ABCD is a trapezium with $AB \parallel DC$. If $\triangle AED$ is similar to $\triangle BEC$, prove that $AD = BC$.



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1. Solve: $4x - y = 5$, $x + y = 5$.



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2. Which term of the A.P. 3, 8, 13, 18, ... is 78 ?



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3. P and Q are points on the sides CA and CB respectively of ABC , right angled at C .

Prove that $AQ^2 + BP^2 = AB^2 + PQ^2$.



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4. If the angles of elevation of the top of a tower from two points at distances a and b from the base and in the same straight line with it are complementary then the height of the tower is



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