



MATHS

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER 10 SOLVED

Part A Section I

1. Give examples of two irrational numbers the product of which is: a rational number (ii) an irrational number

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2. Find the H.C.F. of $(2^3 \times 3 \times 5)$ and $(2^4 \times 5^2 \times 17)$

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3. Write a quadratic polynomial, whose zeros are 2 and 4.

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4. Write the 11th term of the A.P.: $\sqrt{3}$, $3\sqrt{3}$, $5\sqrt{3}$, _____

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5. Discuss the nature of the quadratic equation $2x^2 + x + 4 = 0$

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6. Write the 2nd term of the AP, if its $S_n = n^2 + 2n$.

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7. Find the roots of $x + \frac{1}{x} = 2$



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8. Write a pair of linear equations which has the unique solution

$$x = -1, y = 3$$



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9. If the distance between the points $(4,p)$ and $(1,0)$ is 5 , then find the value of p .



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10. Find the distance between the points $(0, 6)$ and $(0, -2)$.



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11. Tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that $OQ = 12$ cm. Find length of PQ



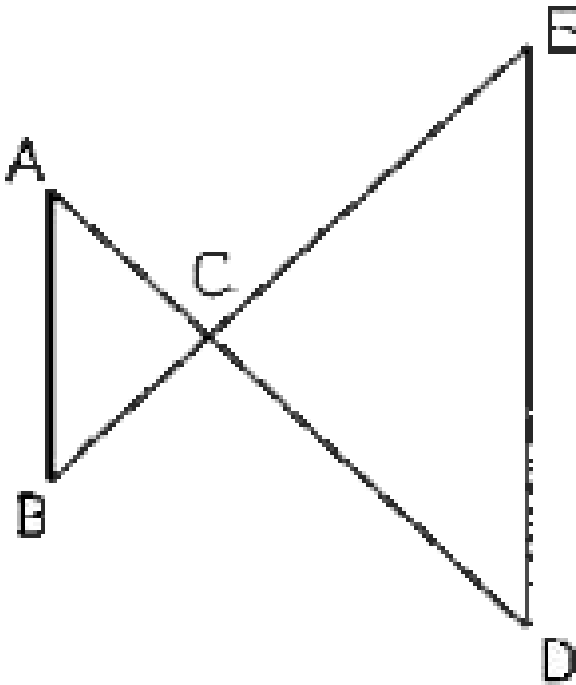
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12. Pythagoras Theorem



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13. In the figure, $AB \parallel ED$. Show that $\triangle ABC \sim \triangle DEC$.



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14. A cumulative frequency distribution is given below. Convert this into a frequency distribution table.

Marks	Below 45	Below 60	Below 75	Below 90	Below 105	Below 120
No. of Students	0	8	23	48	85	116

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15. From a tank containing 10 male fish and 12 female fish, a fish is taken out, then probability that it is a female fish is?

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16. Median of discrete frequency distribution

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17. Construction of a Grouped frequency distribution

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18. Find the number if eight times of its is added to its square, the sum so obtained is -16.

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19. Find the value of $(1 + \cos A)(1 - \cos A)\operatorname{cosec}^2 A$.

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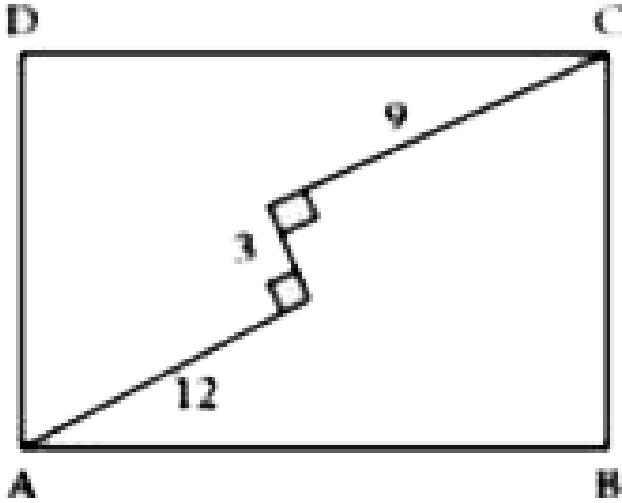
20. What is the maximum value of $\frac{1}{\operatorname{cosec} \theta}$?

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21. If $\sin \theta + \operatorname{cosec} \theta = 4$, then find the value of $\sin^2 \theta + \operatorname{cosec}^2 \theta$

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1. ABCD is a square. Find out the side of square?



A. 18 m

B. 20 m

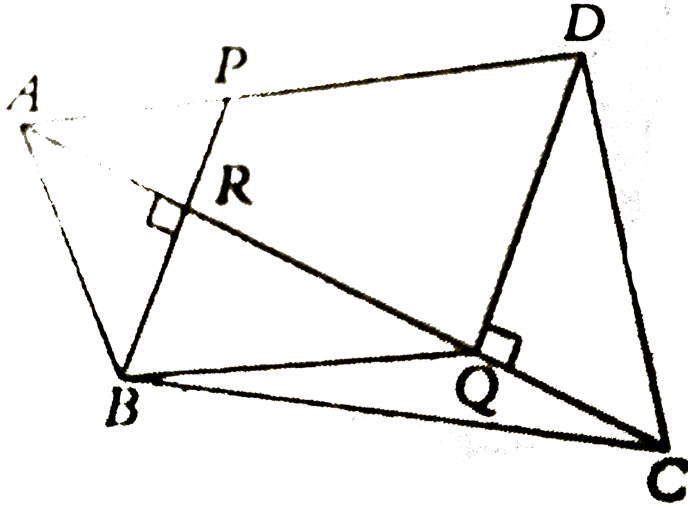
C. 21 m

D. 22 m

Answer: C



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2.

In the figure given above, ABCD is a quadrilateral and BPDQ is parallelogram. AR = 50 cm, CQ = 70 cm, BR = 60, and PR = 40 cm. If the area of the quadrilateral ABCD is $15,600\text{cm}^2$, then find the area of then find the area of the parallelogram BPDQ (in cm^2).

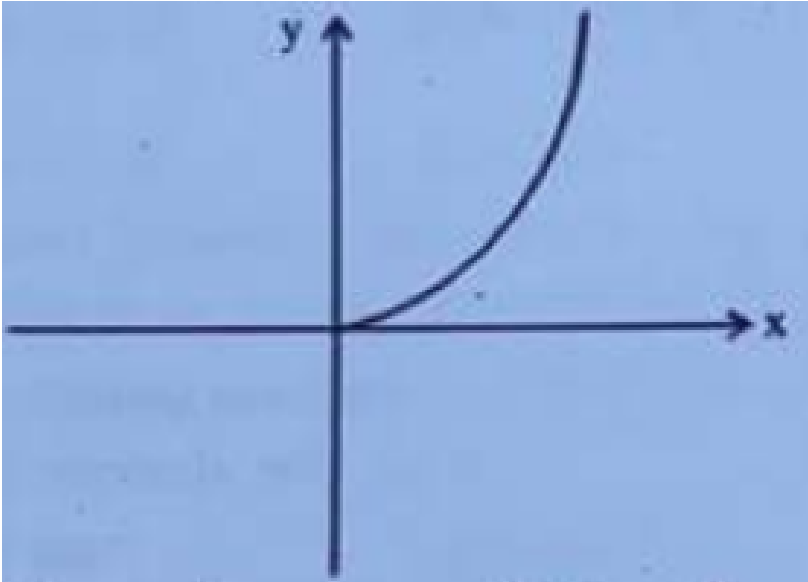
- A. 5.25 sq m
- B. 4.5 sq m
- C. 5 sq m
- D. 5.5 sq m

Answer: A



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



A. ₹ 575

B. ₹ 450

C. ₹ 525

D. ₹ 550

Answer: C

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Item	Quantity (in kg)	Rate per kg (in ₹)	
		In the Year 2000	In the Year 2007
A	12	X	50
B	x	16	31
C	8	20	$x + 20$
D	10	40	86

4.

The cost of living index for the year 2007 considering the base year as 2000, is 225. Find x.

- A. ₹ 2800
- B. ₹ 2660
- C. ₹ 2521
- D. ₹ 2638

Answer: D



5. Pass the necessary Journal entries to rectify the following errors:

(i) Rs. 15,000 paid as wages for the construction of office building debited to Salaries Account.

(ii) Rs. 20,000 spent on the purchases of material for the construction of building debited to Purchases Account.

(iii) Rs. 50,000 spent on the extension of building was debited to Building Repairs Account.

(iv) Rs. 25,000 spent on whitewash of a new building was charged to Building Repairs Account.

(v) Rs. 1,000 paid as installation charges for newly purchased second hand machinery posted to Cartage Account.

(vi) Rs. 10,000 paid as repairing charges on the reconditioning of a newly purchased second hand machinery debited to General Expenses Account.

(vii) Rs. 5,000 paid as repairing charges of an existing machine in use charged to Machinery Account.

Rs. 10,000 paid by cheque for a printer was charged to the Office Expenses Account.

- A. 5.22 sq m
- B. 11.5 sq m
- C. 18.84 sq m
- D. 24.11 sq m

Answer: A



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

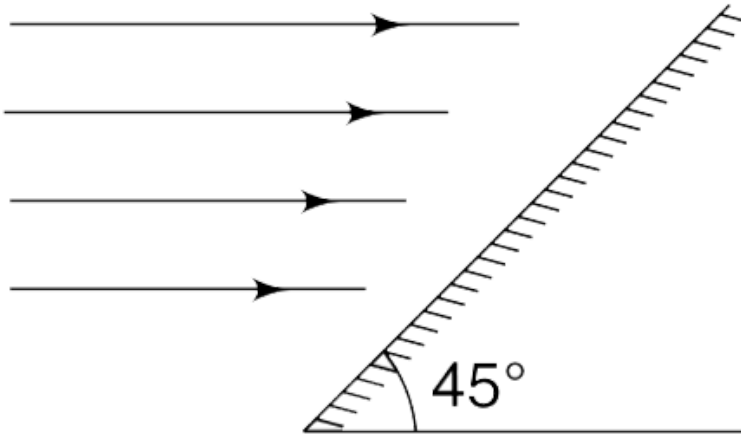
- A. 8
- B. 6
- C. 5

D. 4

Answer: B

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7. 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. $14\text{ cm} \times 14\text{ cm} \times 3\text{ cm}$

B. $18\text{ cm} \times 18\text{ cm} \times 1\text{ cm}$

C. $12\text{ cm} \times 12\text{ cm} \times 4\text{ cm}$

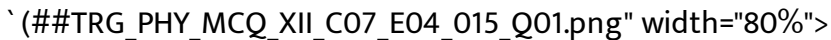
D. $8\text{ cm} \times 8\text{ cm} \times 8\text{ cm}$

Answer: A



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8. Stationary sound 'S' of frequency 334 Hz and a stationary observer 'O' are placed near a reflecting surface moving away from the source with velocity 2 m/s the apparent frequency of the echo of S considering velocity of sound equal to 334 m/s is



A. $14\text{ cm} \times 14\text{ cm} \times 3\text{ cm}$

B. $19\text{ cm} \times 18\text{ cm} \times 1\text{ cm}$

C. $13\text{ cm} \times 12\text{ cm} \times 4\text{ cm}$

D. $9\text{ cm} \times 8\text{ cm} \times 8\text{ cm}$

Answer: B



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

A. $4x^3d + 80x^2 - 400x$

B. $400x + 4x^3 - 80x^2$

C. $4x^3 + 80x^2 + 400x$

D. $400 + 4x^3 - 80x^2$

Answer: B



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10. Stationary sound 'S' of frequency 334 Hz and a stationary observer 'O' are placed near a reflecting surface moving away from the source with

velocity 2 m/s the apparent frequency of the echo of S considering velocity of sound equal to 334 m/s is

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- A. 10
- B. 16
- C. 21
- D. infinite number

Answer: D



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11. The students of a school decided to beautify the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags were stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 12th

B. 13th

C. 14th

D. 15th

Answer: C



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12. The students of a school decided to beautify the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags were stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 188 m

B. 286 m

C. 314 m

D. 364 m

Answer: D



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13. The students of a school decided to beautify the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags were stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 628 m

B. 728 m

C. 572 m

D. 376 m

Answer: B



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14. The students of a school decided to beautify the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags were stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. 22 m

B. 24 m

C. 26 m

D. 28 m

Answer: C



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15. The students of a school decided to beautify the school on the annual day by fixing colourful flags on the straight passage of the school. They have 27 flags to be fixed at intervals of every 2 m. The flags are stored at the position of the middle most flag. Ruchi was given the responsibility of placing the flags.

Ruchi kept her books where the flags were stored. She could carry only one

flag at a time. How much distance she did cover in completing this job and returning back to collect her books ? What is the maximum distance she travelled carrying a flag ?

A. ₹ 57

B. ₹ 390

C. ₹ 780

D. ₹ 810

Answer: D



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16. The height (in meters) at any time t (in seconds) of a ball thrown vertically varies according to equation $h(t) = -16t^2 + 256t$. How long after in seconds the ball reaches the highest point

A. 135 m

B. 140 m

C. 128 m

D. 145 m

Answer: C



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17. A ball is released from the top of a tower of height h metre. It takes T second to reach the ground. What is the position of the ball in $\frac{T}{3}$ second?

A. 154 m

B. 144 m

C. 136 m

D. 158 m

Answer: B



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18. A ball is thrown upwards with a speed u from a height h above the ground. The time taken by the ball to hit the ground is

A. 4 seconds

B. 3 seconds

C. 5 seconds

D. 6 seconds

Answer: C



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19. A ball is thrown upwards with a speed u from a height h above the ground. The time taken by the ball to hit the ground is

A. 1 and 3 seconds

B. 1.5 and 2.5 seconds

C. 0.5 and 2.5 seconds

D. 1.6 and 2.6 seconds

Answer: A



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20. A ball is thrown upwards with a speed u from a height h above the ground. The time taken by the ball to hit the ground is

A. At the ground

B. rebounds

C. at highest point

D. fall back

Answer: B



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1. Show that $4\sqrt{2}$ is an irrational number.

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2. Find the greatest number that divides 338 and 59 and leaves remainders of 2 and 5 respectively.

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3. Three consecutive vertices of a parallelogram are $(-2,-1)$, $(1,0)$ and $(4,3)$.

Find the fourth vertex

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4. The perpendicular bisector of the line segment joining the points $A(1,5)$ and $B(4,6)$ cuts the Y-axis at



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5. Prove that the length of the tangents drawn from an external point to a circle are equal.



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6. Find the angle of elevation of the sun when the shadow of a pole 'h' metres high is $\sqrt{3}h$ metres long.



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7. Determine the ratio of the volume of a cube to that of a sphere which will exactly fit inside the cube.



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8. Find the volume of the largest right circular cone that can be cut out of a cube whose edge is 21 cm

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Part B Section Iv

1. Determine the zeroes of the polynomial $p(x) = x^3 - 2x^2$. Also verify the relationship between the zeroes and the coefficient.

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2. ₹ 250 were divided equally among a certain number of children. If there were 25 more children, each would have received 50 paise less. Find the number of children.

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3. If the centre of a circle is $(2a, a-7)$, then Find the value of a , if the circle passes through the point $(11, -9)$ and has diameter $10\sqrt{2}$ units .

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4. HCF of 75 and 126 is

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5. In $\triangle ABC$, $\angle A$ is acute. BD and CE are perpendicular on AC and AB respectively. Prove that $AB \times AE = AC \times AD$.

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6. Draw a circle of radius 4 cm. Construct a pair of tangents to it, the angle between which is 60° . Also justify the construction. Measure the distance between the centre of the circle and the point of intersection of tangents.



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7. If $x = a \cos^3 \theta$ and $y = b \sin^3 \theta$, prove that $\left(\frac{x}{a}\right)^{2/3} + \left(\frac{y}{b}\right)^{2/3} = 1$.



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8. The modal class for the following frequency distribution, is

Marks:	0 – 10	10 – 20	20 – 40	40 – 50	50 – 60	60 – 70
No. of students:	4	6	14	16	14	8



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9. I toss three coins together. The possible outcomes are no heads, 1 head, 2 heads and 3 heads. So, I say that probability of no heads is $\frac{1}{4}$. What is wrong with this conclusion?



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1. If a line is drawn to one side of a triangle to intersect the other two sides in distinct points, prove that the other two sides are divided in the same ratio.

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2. From the top of a building AB , 60 m high, the angles of depression of the top and bottom of a vertical lamp post CD are observed to be 30° and 60° respectively. Find the height of the lamp post.

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3. Prove that $\frac{1 + \sec A - \tan A}{1 + \sec A + \tan A} = 1 - \frac{\sin A}{\cos A}$

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4. In the following frequency distribution, if the arithmetic mean is 45.6, find out missing frequency.

Wages(Rs.)	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 –
Number of Workers	5	6	7	X	4	3



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