



MATHS

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER - 3

Section A

1. Evaluate $\sin \theta \times \cos \theta$ if $\sin \theta + \cos \theta = \sqrt{2}$

A. $\sqrt{2}$

B. 1

C. 0

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

Answer: D



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2. Write the algebraic representation of the situation, the sum of two numbers is 137 and their difference is 43"

A. $x - y = 137, x - y = 43$

B. $x + y = 137, x - y = 43$

C. $2x + y = 137, x - y = 43$

D. $3x + y = 137, x + y = 137$

Answer: B



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3. On rolling two dice at once, what is the probability of getting a sum of doublets less than 5?

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

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

C. $\frac{1}{18}$

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

Answer: C



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4. Calculate the number of solutions for the pair of linear equations $y = 0$ and $y = 7$.

A. Two solution

B. Three solution

C. No solution

D. One solution

Answer: C



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5. In $\triangle ABC$, right angled at B, if $\sin A = \frac{1}{2}$,

Then the value of $\sin C \cos A - \cos C \sin A$ is

:

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

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

C. 1

D. 0

Answer: B



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6. Write the area of the sector of a circle whose radius is r and length of the arc is l .

A. $\frac{1}{2}lr$

B. lr

C. $\frac{\theta}{360^\circ} \times lr$

D. $\frac{\theta}{180^\circ} \times lr$

Answer: A



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7. A bag contains tickets numbered 11, 12, 13,, 30. A ticket is taken out from the bag at random. Find the probability that the number

on the drawn ticket (i) is a multiple of 7 (ii) is greater than 15 and a multiple of 5.

A. $\frac{1}{21}$

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

C. $\frac{7}{20}$

D. $\frac{3}{20}$

Answer: D



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8. Determine the ratio in which the line $3x + y - 9 = 0$ divides the segment joining the points $(1,3)$ and $(2, 7)$.

A. 4:3

B. 3:4

C. 4:7

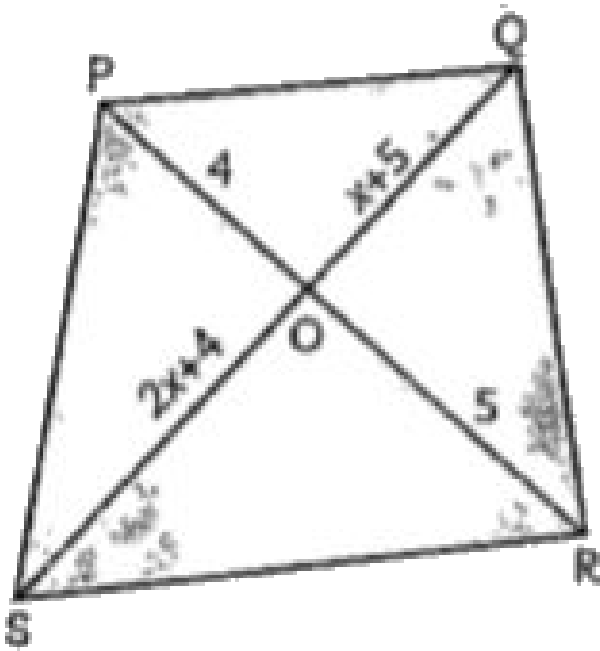
D. 7:4

Answer: B



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9. In the given figure, PQRS is a trapezium, such that $PQ \parallel SR$. Find x .



A. 2

B. 5

C. 3

D. 4

Answer: C



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10. Calculate the least positive integer which is divisible by 20 and 24.

A. 120

B. 200

C. 150

D. 480

Answer: A



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11. If $LCM(x, 18) = 36$ and $HCF(x, 18) = 2$,

then x is

A. 4

B. 8

C. 2

D. 6

Answer: A



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12. After how many places, the decimal form of

the number $\frac{27}{2^3 5^4 3^2}$ will terminate?

A. one

B. two

C. three

D. four

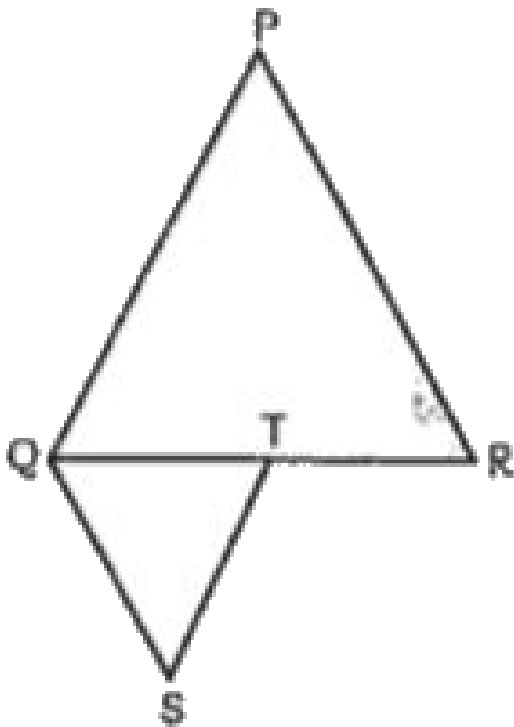
Answer: D



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13. ΔPQR and ΔQST are two equilateral triangles such that T is the mid-point of QR. Find the ratio of the areas of ΔPQR and

$\triangle QST$.



A. 1 : 1

B. 1 : 2

C. 2 : 1

D. 4: 1

Answer: D



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14. For some integer q , every odd is of the form

A. m

B. $m+1$

C. $2m$

D. $2m+1$

Answer: A



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15. If $\frac{241}{400} = \frac{241}{2^m \times 5^n}$ then then find the value of $m + n$, where m and n are non-negative integers.

A. 10

B. 8

C. 6

D. 7

Answer: B



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16. In which quadrant does the mid-point of the Line segment joining the points $(-1, 2)$ and $(3, 4)$ lies?

A. I

B. II

C. III

D. IV

Answer: A



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17. A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is either a king or an ace.

A. $\frac{2}{13}$

B. $\frac{1}{13}$

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

D. $\frac{3}{13}$

Answer: A



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18. What is the value of k , if one of the zeroes of the quadratic polynomial

$(k - 1)x^2 + kx + 1$ is 3?

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

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

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

D. $\frac{5}{7}$

Answer: A



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19. ABC is a isosceles right angled triangle, right angled at C. prove that $AB^2 = 2AC^2$

A. one

B. two

C. three

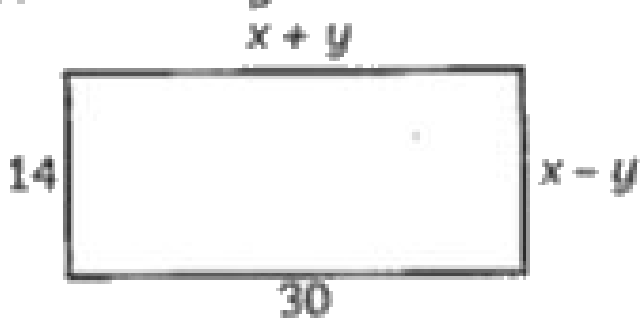
D. four

Answer: B



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20. From the adjoining figure of a rectangle, find the values of x and y .



- A. 12,18
- B. 8,16
- C. 22,8
- D. 20,10

Answer: C



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Section B

1. What is the perimeter of the semi-circular field, whose area is 15400 sq. m?

A. $460\sqrt{2}m$

B. $360\sqrt{2}m$

C. $260\sqrt{2}m$

D. $160\sqrt{2}m$

Answer: B



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2. The probability that a leap year, selected at random, will contain 53 Sunday is:

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

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

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

D. $\frac{4}{7}$

Answer: B



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3. In a $\triangle ABC$ right angled at B, if the two legs AB and BC are in the ratio 1:3, evaluate the value of $\sin C$.

A. $\frac{\sqrt{10}}{3}$

B. $\frac{3}{\sqrt{10}}$

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

D. $\frac{1}{\sqrt{10}}$

Answer: D



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4. Find the area of a quadrant of a circle whose circumference is 22cm.

A. $9.625.3cm^2$

B. $10.25cm^2$

C. $11.275cm^2$

D. $8.625cm^2$

Answer: A



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5. Write the values of k for which the system of equations $x + ky = 0$, $2x - y = 0$ has unique solution.

A. $k \neq -\frac{1}{2}$

B. $k \neq \frac{3}{2}$

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

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

Answer: A



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6. The diagonals of a rhombus are 10 cm and 24 cm. Find the length of a side of the rhombus.

A. 9 cm

B. 13 cm

C. 15 cm

D. Both (a) and (b)

Answer: B



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7. If $x \sin \theta + y \cos \theta = \sin \theta \cdot \cos \theta$ and

$x \sin \theta - y \cos \theta = 0$ find $x^2 + y^2$

A. 1

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

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

D. 0

Answer: C



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8. A situation is given. Represent it in the form of linear equations, 5 books and 7 pens together cost Rs 79 whereas 7 books and 5 pens together cost 77. Here consider cost of each book as x and that of each pen as Rs y .

A. $17x + 7y = 79, 5x + 5y = 77$

B. $5x + 7y = 79, 7x + 5y = 77$

C. $5x + 5y = 79, 7x + 7y = 77$

D. Data is insufficient

Answer: B





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9. The HCF of 85 and 153 can be expressed in the form of $85m - 153$. Calculate the value of m .

A. 1

B. 5

C. -1

D. 2

Answer: D



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10. A thief runs with a uniform speed of 100 m/min. After one minute a policeman runs after the thief to catch him. He goes with a speed of 100 m/min in first minute and increases his speed by 10 m/min every succeeding minute. After how many minutes the policeman will catch the thief.

A. 60 min

B. 50 min

C. 1 hr 5 min

D. 15 min

Answer: A



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11. The number of revolutions made by a wheel of diameter 1 m to cover a distance of 22 km will be:

A. 4000

B. 5500

C. 7000

D. 2800

Answer: C



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12. Evaluate $(1 - \sin^2 \theta) - \cos^2 \theta$.

A. 0

B. 1

C. -1

D. 2

Answer: A



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13. What is the type of solution the pair of linear equation $x + 3y = 4$ and $2x + y = 5$ have.

A. unique

B. Infinite

C. No Solution

D. Both (a) and (b)

Answer: A



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14. A ladder 17m long reaches a window of a building 15m above the ground. Find the distance of the foot of the ladder from the building.

A. 8 m

B. 12 m

C. 10 m

D. 13 m

Answer: A



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15. Find the area of a quadrant of a circle whose circumference is 44 cm.

A. $\frac{77}{2} \text{ cm}^2$

B. 77 cm^2

C. $\frac{44}{7} \text{ cm}^2$

D. 44 cm^2

Answer: D



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16. Out of 2000 tickets of a lottery, there are 16 tickets, which have prizes. Anupam purchased

one lottery ticket. What is the probability that he wins a prize?



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17. ABC is an isosceles triangle, which is right angled at B with $AB = 4$ cm. What is the length of AC?

A. 2 cm

B. $2\sqrt{2}$ cm

C. 4 cm

D. $4\sqrt{2}$ cm

Answer: B



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

A. 5 cm

B. 6 cm

C. 7 cm

D. 8 cm

Answer: B



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19. A single letter is selected at random from the word "PROBABILITY" . The probability that it is a vowel is

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

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

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

D. $\frac{7}{11}$

Answer: A



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20. If in two $\triangle ABC$ and $\triangle PQR$,

$$\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ}, \text{ then}$$

A. $\triangle BCA \sim \triangle PQR$

B. $\triangle PQR \sim \triangle CAB$

C. $\Delta PQR \sim \Delta ABC$

D. $\Delta CBA \sim \Delta PQR$

Answer: B



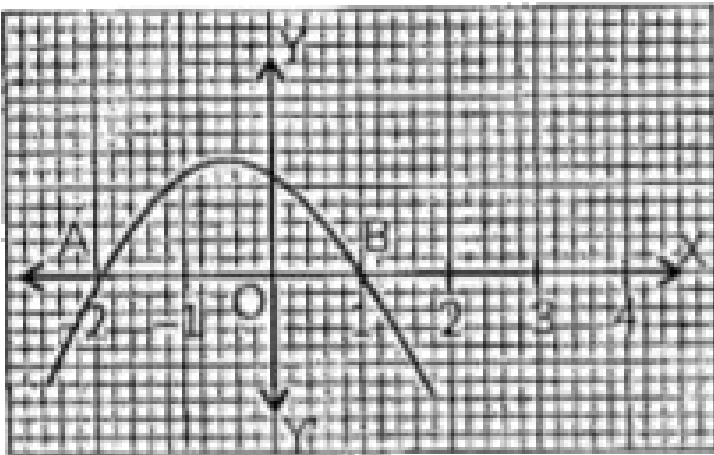
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Section C

1. Last month, heavy storm came in Kerala. Due to which lots of damage had occurred. Due to this storm thousands of trees got broke and

electric poles bent out. Place picture of the storm in which trees and electric poles are bent.

Some of the electric poles bent into the shape of parabola. One of the images of bent electric pole is shown in the figure below:



Calculate the zeroes of the given curve ?

A. -2 and 1

B. -2 and -1

C. 2 and -1

D. Both (a) and (b)

Answer: A

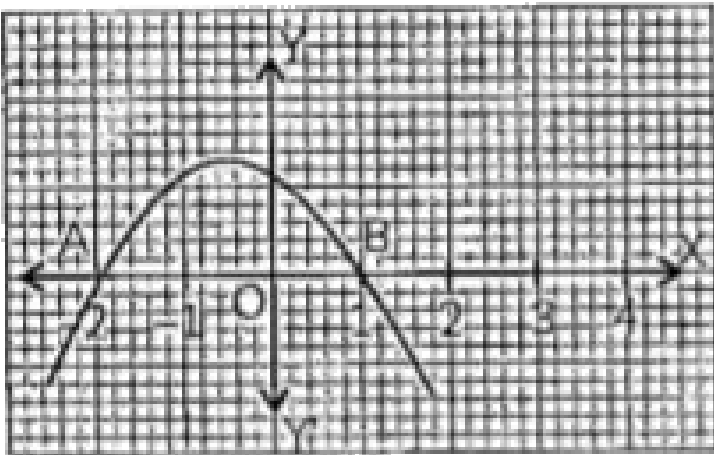


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2. Last month, heavy storm came in Kerala. Due to which lots of damage had occurred. Due to this storm thousands of trees got broke and

electric poles bent out. Place picture of the storm in which trees and electric poles are bent.

Some of the electric poles bent into the shape of parabola. One of the images of bent electric pole is shown in the figure below:



What is the polynomial expression of given curve ?

A. $x^2 + x - 2$

B. $x^2 - x + 2$

C. $x^2 - x - 2$

D. $x + x + 2$

Answer: A

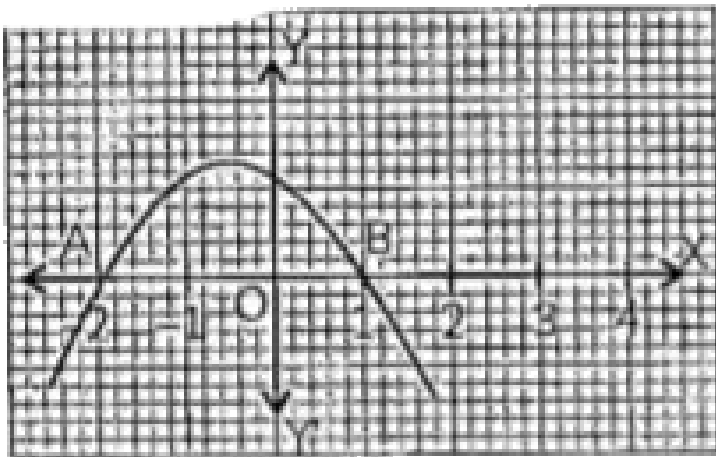


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3. Last month, heavy storm came in Kerala. Due to which lots of damage had occurred. Due to this storm thousands of trees got broke and

electric poles bent out. Place picture of the storm in which trees and electric poles are bent.

Some of the electric poles bent into the shape of parabola. One of the images of bent electric pole is shown in the figure below:



If $x = 2$, then what will be the value of the polynomial?

A. 3

B. -4

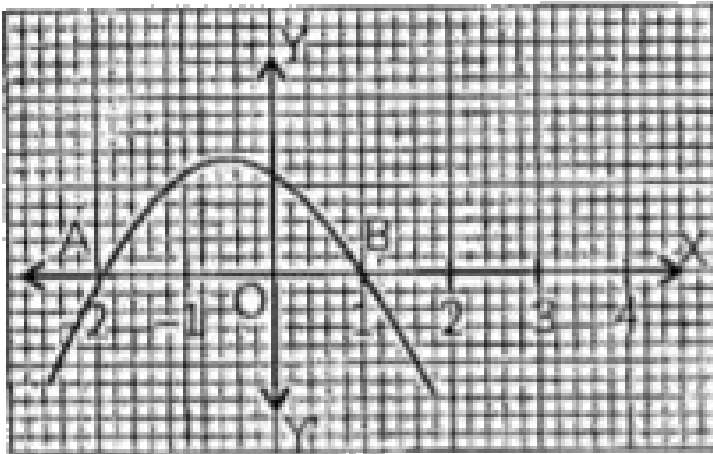
C. 2

D. 4

Answer: D



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4.

If the parabola is moved towards the right side by one unit, then find the polynomial expression.

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

B. $x^2 + x + 2$

C. $x^2 + x - 2$

D. $x^2 - x - 2$

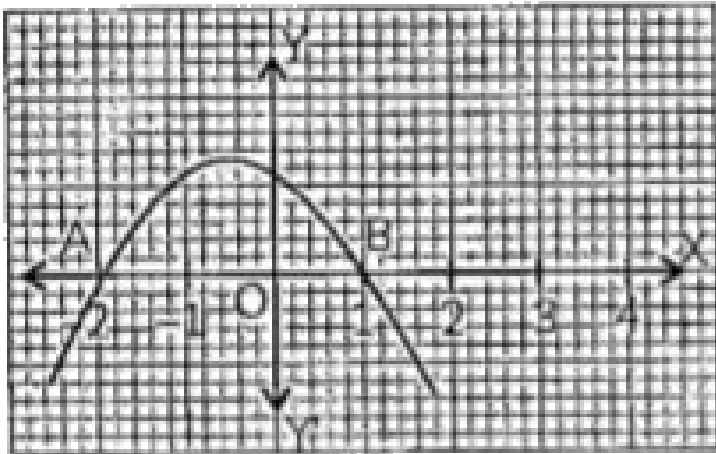
Answer: B



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5. Last month, heavy storm came in Kerala. Due to which lots of damage had occurred. Due to this storm thousands of trees got broke and electric poles bent out. Place picture of the storm in which trees and electric poles are bent.

Some of the electric poles bent into the shape of parabola. One of the images of bent electric pole is shown in the figure below:



Suppose the quadratic polynomial for given curve is $ax^2 + bx + c$. Then 'a' always is :

A. > 0

B. < 0

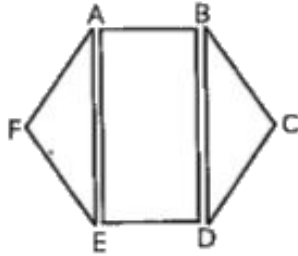
C. ≥ 0

D. ≤ 0

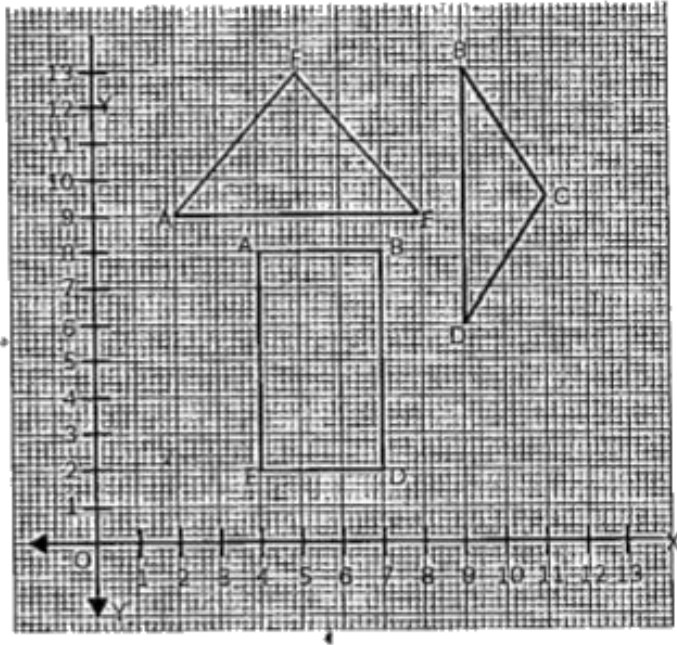
Answer: B



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Scale : One block is of 1×1 squares.



6.

What are the coordinates of points E and B of rectangle ABDE?

A. $(4,2), (6,8)$

B. $(3, 2), (7, 8)$

C. $(4, 2), (7, 8)$

D. Both (a) and (b)

Answer: C



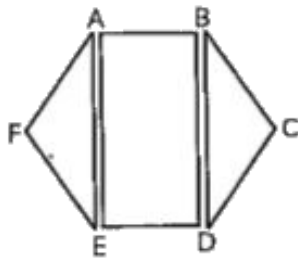
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7. Radhika and Samira are playing with a dice.

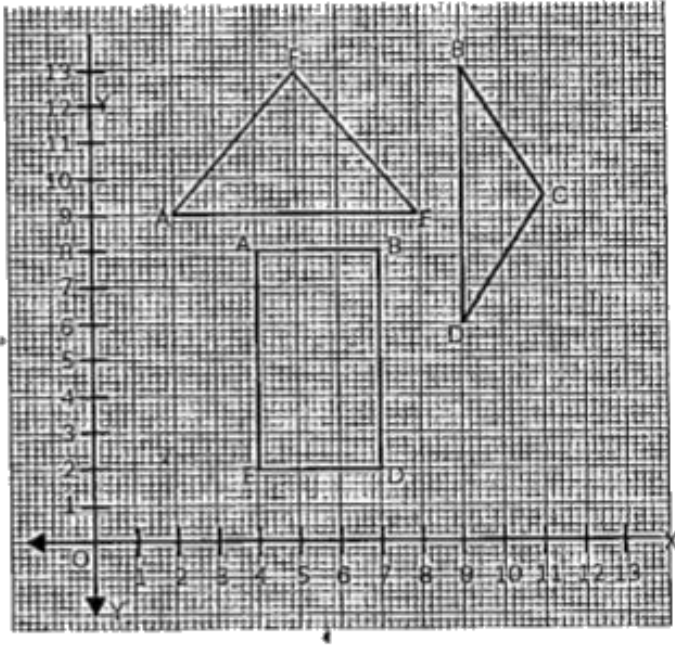
The dice is a hexagonal three-dimensional

shaped. They cut the dice into three parts as

shown in the coordinate axes along the figure.



Scale : One block is of 1×1 squares.



What is the length AE of $\triangle AEF$?

A. 3

B. 4

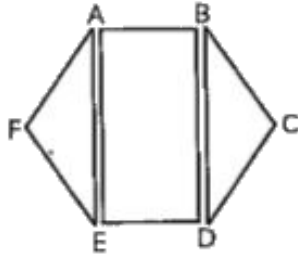
C. 5

D. 6

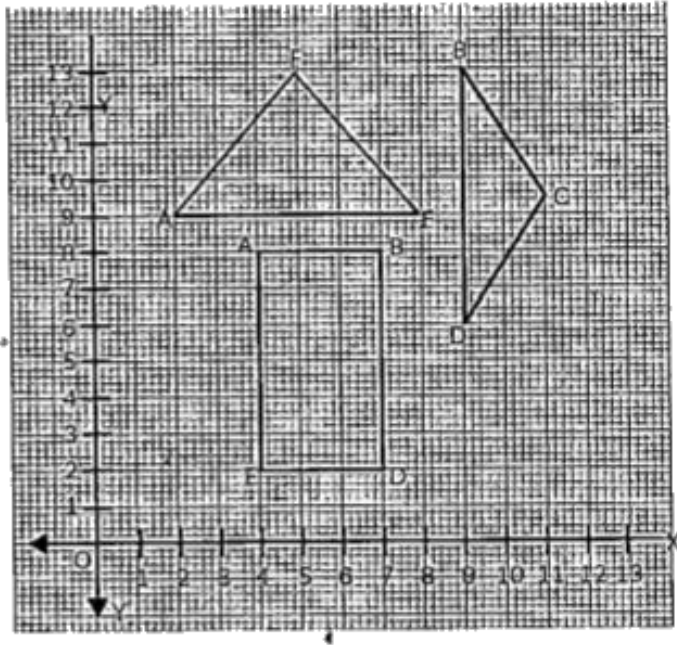
Answer: D



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Scale : One block is of 1×1 squares.



8.

Evaluate :ar ($\triangle BCD$)

A. 5 sq. units

B. 6 sq. units

C. 8 sq. units

D. 7 sq. units

Answer: B



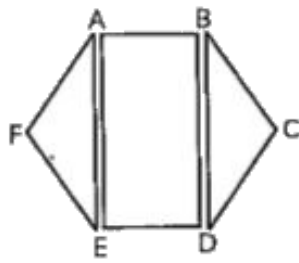
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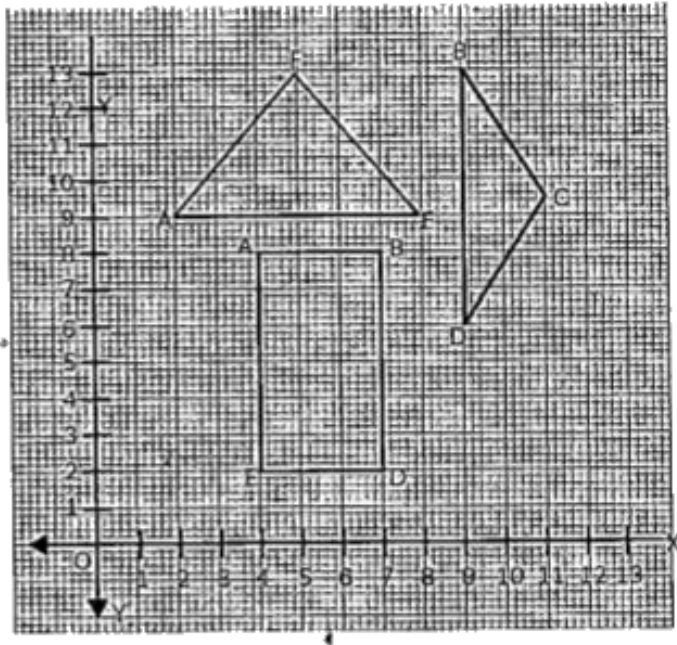
The dice is a hexagonal three-dimensional

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shown in the coordinate axes along the figure.



Scale : One block is of 1×1 squares.



Evaluate perimeter of the rectangle ABDE.

A. 16 units

B. 17 units

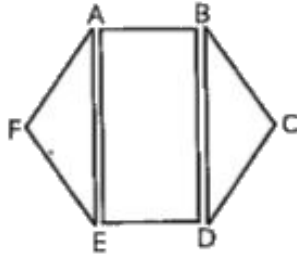
C. 18 units

D. 20 units

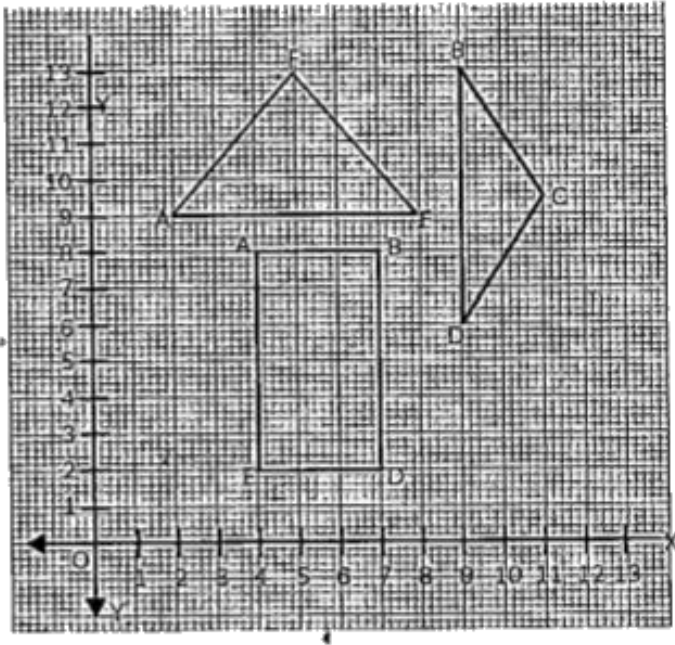
Answer: C



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Scale : One block is of 1×1 squares.



10.

What are the coordinate of intersection point of diagonals in the rectangle ABDE.

A. $\left(\frac{11}{2}, 5\right)$

B. $\left(\frac{11}{3}, 5\right)$

C. $\left(\frac{11}{2}, 6\right)$

D. Both (a) and (b)

Answer: A



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