



MATHS

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER 9 (SELF-ASSESSMENT)

Section A

1. If the sum and product of zeroes of a polynomial are $-2, 3$ respectively, then the polynomial is

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

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

C. $x^2 + 2x + 3$

D. $x^2 - 2x - 3$

Answer:



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2. Evaluate: $5 + \frac{(1 + \tan^2 \theta) \sin \theta \cos \theta}{\tan \theta}$

A. 1

B. 5

C. -1

D. 6

Answer:



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3. Find the distance $2AB$, where A and B are the points $(-6, 7)$ and $(-1, -5)$ respectively.

A. 28 units

B. 24 units

C. 25 units

D. 26 units

Answer:



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

A. m

B. $m + 1$

C. $2m$

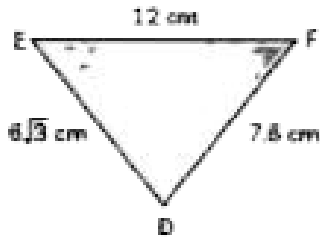
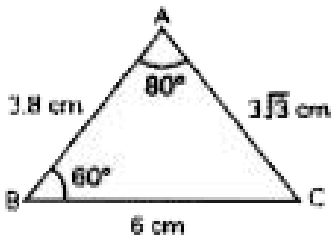
D. $2m + 1$

Answer:



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5. What is the value of $\angle F$ in the given figure



A. 60°

B. 80°

C. 40°

D. 70°

Answer:



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6. Express R_3 in terms of R_1 and R_2 , where the sum of areas of two circles with radii R_1 and R_2 is equal to the area of the circle of radius R_3 .

A. $R_3^2 + R_2^2 + R_1^2$

B. $R_3^2 = R_1^2 - R_2^2$

C. $R_3^2 = R_1^2 + R_2^2$

D. $R_3^2 + R_1^2 = R_2^2$

Answer:



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7. Find the value of y , if the point $(5, y)$ divides the line segment joining $A(9, -1)$ and $B(3, -7)$ in the ratio $2:1$.

A. 5

B. -4.5

C. 6.5

D. 0

Answer:



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8. The condition on the polynomial

$p(x) = ax^2 + bx + c, a \neq 0,$ so that its

zeroes are reciprocal of each other, is

A. $a=c$

B. $b=c$

C. $a = -b$

D. $a \neq b \neq c$

Answer:



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9. The total number of students in class X are 54, out of which there are 32 girls and rest are boys. The class teacher has to select one class

representative. She writes the name of each student on a separate card and put the cards in one bag. She randomly draw one card from the bag. What is the probability that the name written on the card is of a girl?

A. $\frac{7}{27}$

B. $\frac{11}{27}$

C. $\frac{16}{27}$

D. $\frac{4}{27}$

Answer:



10. After how many places, the decimal form of

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

A. 1

B. 2

C. 3

D. 4

Answer:



11. If any two sides of a triangle are divided by the line in the same ratio, then the line must be _____ to the third side of the triangle.

- A. parallel
- B. perpendicular
- C. equal
- D. half

Answer:



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12. Evaluate $\frac{y^2}{b^2} - \frac{x^2}{a^2}$, where
 $x = a \tan \theta$ and $y = b \sec \theta$

A. 0

B. 1

C. -1

D. 3

Answer:



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13. What is the area of the largest triangle that can be inscribed in a semicircle of radius r unit.

A. $\sqrt{2}r^2$ sq units

B. r^2 sq units

C. $\frac{1}{2}r^2$ sq units

D. $2r^2$ sq units

Answer:



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14. The HCF of 96 and 404 is

A. 4

B. 16

C. 8

D. 12

Answer:



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15. For a rational number $\frac{p}{q}$ to be terminating decimal, the denominator q must be of the form $2^m 5^n$, where m, n are

- A. Integers
- B. Natural numbers
- C. Positive integers
- D. Non-negative integers

Answer: B



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16. The value of

$$2\tan 45^\circ - \sec 60^\circ + \operatorname{cosec} 30^\circ \text{ is}$$

A. 5

B. 4

C. 3

D. 2

Answer:



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17. $A(30, 20)$ and $B(6, -4)$ are two points.

The coordinates of point P in AB such that

$2PB = AP$ are:

A. $(14, 4)$

B. $(22, 9)$

C. $(14, -4)$

D. $(-22, 9)$

Answer:



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18. In $\triangle ABC$, right angled at B, if $AB=12\text{cm}$, $BC=x$ and $AC=13\text{cm}$, then the value of x is

A. 7

B. 5

C. -7

D. -5

Answer:



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19. Calculate the value of k , if $x=k$ is a solution of the quadratic polynomial $x^2 + 4x + 3$.

A. 1

B. -1

C. 3

D. -4

Answer:



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20. If $A(3,4)$, $B(7, 9)$ and $C(x, 2)$ are the vertices of $\triangle ABC$ whose centroid is $G(4, y)$, then the value of x and y , respectively are:

A. 2,5

B. $-6, 15$

C. $-2, 7.5$

D. $\frac{14}{3}, \frac{15}{2}$

Answer:



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Section B

1. Find the least number which when divided by 15, leaves a remainder of 5, when divided by 25, leaves a remainder of 15 and when divided by 35 leaves a remainder of 25.

A. 515

B. 550

C. 530

D. 600

Answer:



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2. If the zeroes of the quadratic polynomial

$x^2 + (a + 1)x + b$ are 2 and -3, then

A. $-7, -1$

B. $5, -1$

C. $2, -6$

D. $0, -6$

Answer:



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3. Find the diameter of the wheel which covers a distance of 88km in 1000 revolutions.

A. 14m

B. 28m

C. 27m

D. 20m

Answer:



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4. If $\sin A + \sin^2 A = 1$, then the value of $\cos^2 A + \cos^4 A$ is 2 (b) 1 (c) -2 (d) 0

A. 1

B. 0

C. -1

D. oo`

Answer:



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5. What is value of $\alpha + \beta$, if $\tan \alpha = 1$ and $\sec \beta = \sqrt{2}$?

A. 0°

B. 30°

C. 45°

D. 90°

Answer:



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6. Determine the ratio in which the line $2x + y - 4 = 0$ divides the line segment joining the points A(2, 2) and B(3,7).

A. 4 : 7

B. 3 : 5

C. 2 : 9

D. 5 : 8

Answer:



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7. Find the length of each side of a rhombus whose diagonals are 24 cm and 10 m long.

A. 34cm

B. 26cm

C. 25cm

D. 13cm

Answer:



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8. In the equation shown below, a and b are unknown constants.

$$3ax + 4y = -2 \text{ and } 2x + by = 14$$

If $(-3, 4)$ is the solution of the given equations, find the value of ab .

A. 10

B. 6

C. 12

D. 15

Answer: A



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9. The value of $\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta}$ is

A. $\cot \theta$

B. $\tan \theta$

C. $\sec \theta$

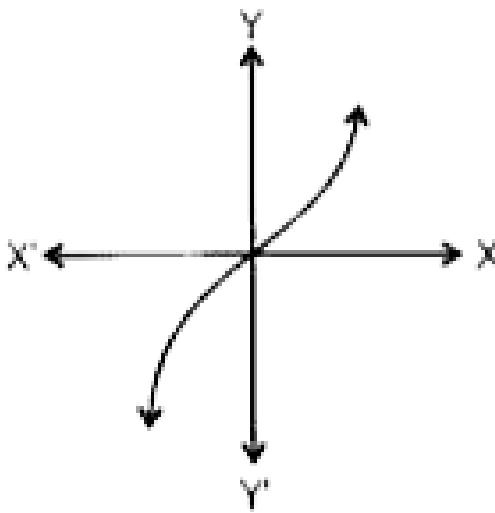
D. $\cos ec\theta$

Answer:



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10. How many zeroes are there of $y = f(x)$ for the given graph?



A. 0

B. 1

C. 2

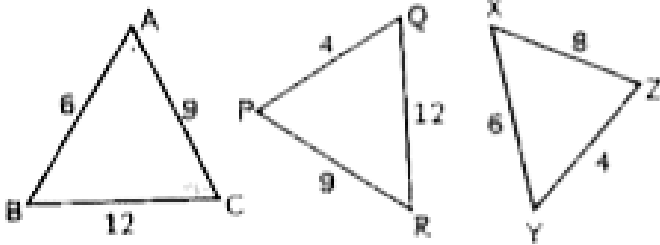
D. 3

Answer: B



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11. In the given figure (not drawn to scale) three triangles are shown. Which of the two triangles are similar ?



A. $\triangle ABC \sim \triangle XYZ$

B. $\triangle PQR \sim \triangle XYZ$

C. $\triangle ABC \sim \triangle YZX$

D. $\Delta QPR \sim \Delta BCA$

Answer: C



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12. If $\text{LCM}(25, 70) = 350$, then $\text{HCF}(25, 70)$ is

A. 10

B. 5

C. 11

D. 12

Answer:



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13. If the mid-point of the segment joining

$A(x, y + 1)$ and $B(x + 1, y + 2)$ is

$C\left(\frac{3}{2}, \frac{5}{2}\right)$, find x, y .

A. $-1, 0$

B. $1, 1$

C. $5, 3$

D. 3,8

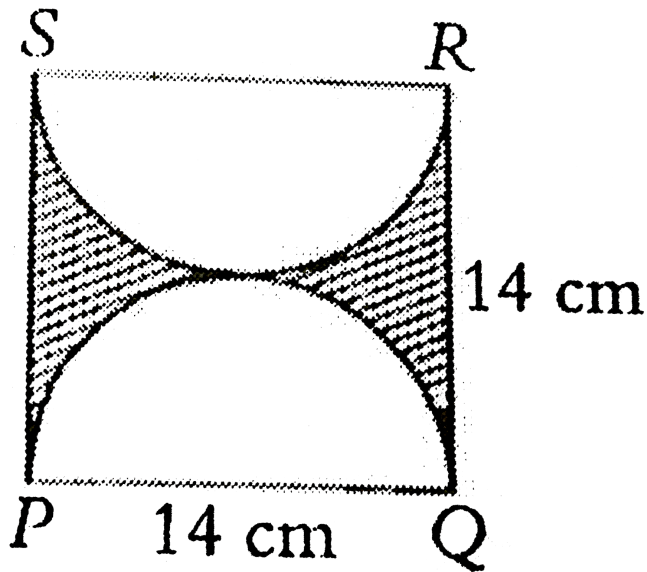
Answer:



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14. In the figure given below, PQRS is a square of side 14 cm and two semicircles are drawn inside of it with PQ and SR as diameters. Find

the area of the shaded region in the figure.



A. 38.71cm^2

B. 40cm^2

C. 36.82cm^2

D. 36cm^2

Answer:



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15. Evaluate for $\sin^{29} x + \cos ec^{29} x$, if $\sin x + \cos ecx = 2$.

A. 2

B. 0

C. 1

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

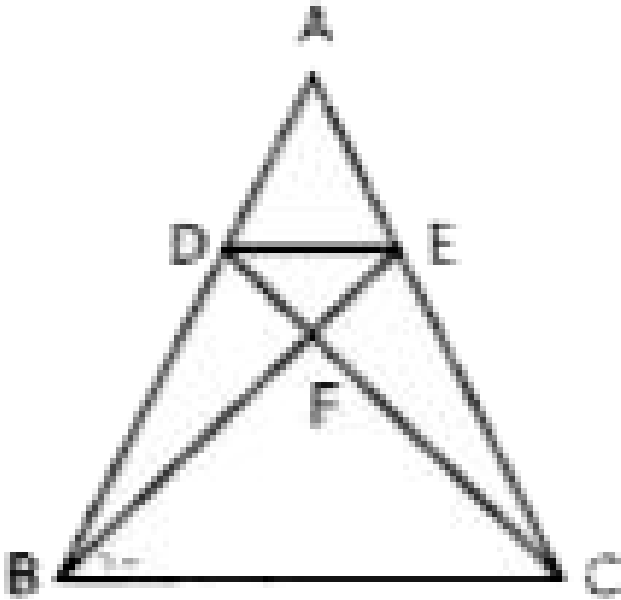
Answer: A



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16. In the figure, if $DE \parallel BC$ and $AD:AB = 5:9$, then the

ratio of areas of $\triangle DEF$ and $\triangle BFC$ is



A. 5 : 4

B. 5 : 9

C. 25 : 81

D. 25 : 16

Answer: c



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17. A quadratic polynomial whose zeros are

$\frac{3}{5}$ and $\frac{-1}{2}$, is

A. $x^2 - 9x + 6$

B. $10x^2 - x - 3$

C. $9x^2 + x + 6$

D. $7x^2 - 3x + 4$

Answer:



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18. The point on the x-axis which is equidistant from the points $(7,6)$ and $(-3, 4)$ is

A. $(4,0)$

B. $(5,0)$

C. $(3,0)$

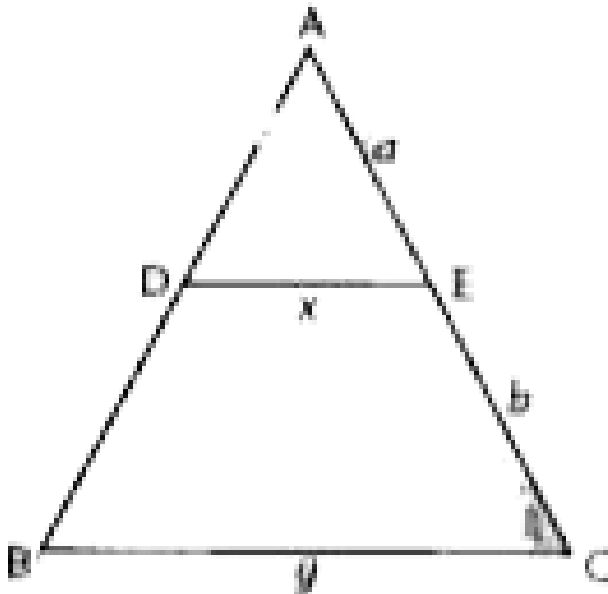
D. $(-6, 0)$

Answer:



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19. In the given figure, $DE \parallel BC$. Which of the following is true?



$$\text{A. } x = \frac{a + b}{ay}$$

$$\text{B. } y = \frac{ax}{a + b}$$

$$\text{C. } x = \frac{ay}{a + b}$$

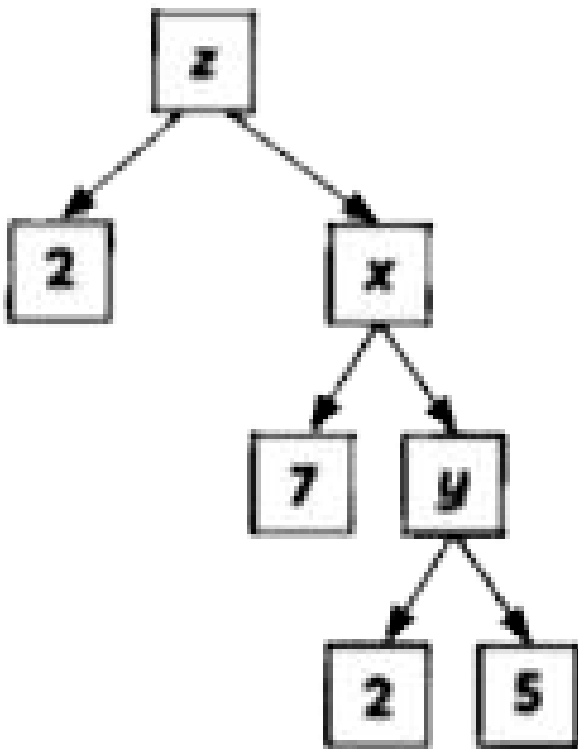
$$\text{D. } \frac{x}{y} = \frac{a}{b}$$

Answer:



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20. From the following factor tree, $x : y : z$ is equal to



A. 7:1:14

B. 1:7:14

C. 7:14:1

D. 14:1:7

Answer:



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Section C Case Study Based Questions

1. For teaching the concept of probability, Mrs. Verma decided to use two dice. She took a pair of die and write all the possible outcomes on the blackboard. All possible outcomes were:



(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)

(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)

(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)

(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)

(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)

(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)

The probability that 4 will not come up on either of them is

A. $\frac{5}{18}$

B. $\frac{11}{36}$

C. $\frac{25}{36}$

D. $\frac{6}{25}$

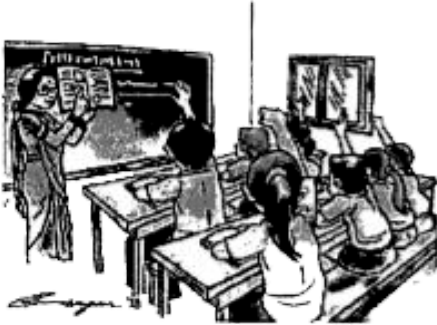
Answer:



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2. For teaching the concept of probability, Mrs. Verma decided to use two dice. She took a pair of die and write all the possible outcomes on the blackboard. All possible outcomes

wave:



(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)

(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)

(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)

(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)

(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)

(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)

The probability that 5 will come up at least once is:

A. $\frac{13}{18}$

B. 0

C. $\frac{11}{36}$

D. $\frac{5}{18}$

Answer:

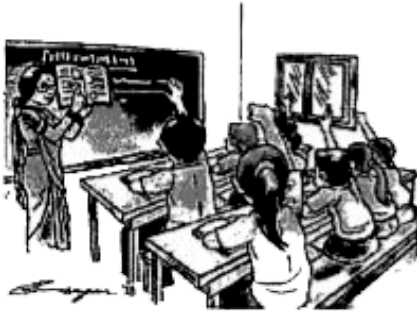


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3. For teaching the concept of probability, Mrs. Verma decided to use two dice. Shet took a pair of die and write all the possible outcomes

on the blackboard. All possible outcomes

wave:



(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)

(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)

(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)

(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)

(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)

(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)

The probability that 6 will come up on both
dice is

A. $\frac{1}{36}$

B. $\frac{5}{36}$

C. $\frac{2}{5}$

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

Answer:



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4. For teaching the concept of probability, Mrs. Verma decided to use two dice. Shet took a pair of die and write all the possible outcomes

on the blackboard. All possible outcomes

wave:



$(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)$

$(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)$

$(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)$

$(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)$

$(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)$

$(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)$

The probability that both numbers comes up are even, is

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

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

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

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

Answer:



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5. For teaching the concept of probability, Mrs. Verma decided to use two dice. She took a pair of die and write all the possible outcomes on the blackboard. All possible outcomes were:



(1,1), (1,2), (1,3), (1,4), (1,5), (1,6)

(2,1), (2,2), (2,3), (2,4), (2,5), (2,6)

(3,1), (3,2), (3,3), (3,4), (3,5), (3,6)

(4,1), (4,2), (4,3), (4,4), (4,5), (4,6)

(5,1), (5,2), (5,3), (5,4), (5,5), (5,6)

(6,1), (6,2), (6,3), (6,4), (6,5), (6,6)

The probability that both numbers come up are prime numbers, is

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

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

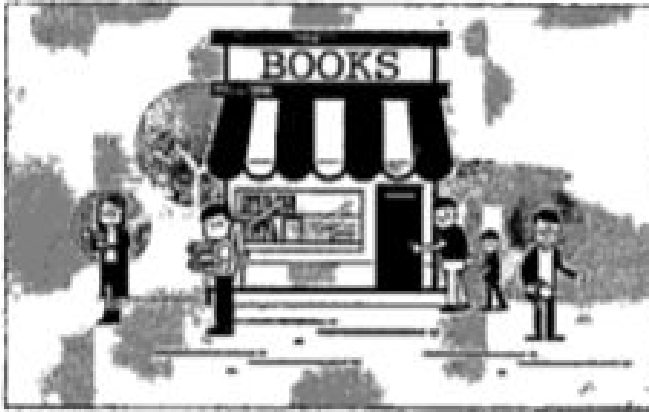
C. $\frac{2}{3}$

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

Answer:



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6.

A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction, story books, quiz books etc. He takes a fixed charges for the first two days and an additional charges for each day thereafter. Radhika paid Rs 22 for a book and kept for six days, while Reshma paid Rs 16

when she kept for 4 days. Let the fixed charges be represented by Rs x and charges for each day be represented by Rs y .

Represent algebraically the situation of amount paid by Reshma

A. $x - 4y = 16$

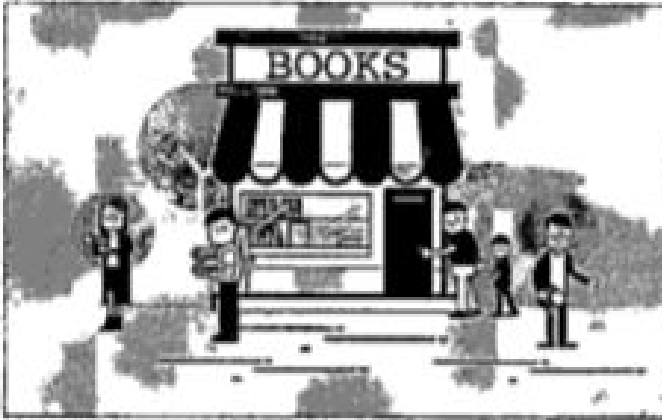
B. $x + 4y = 16$

C. $x - 2y = 16$

D. $x + 2y = 16$

Answer:





7.

A book store shopkeeper gives books on rent for reading. He has variety of books in his store related to fiction, story books, quiz books etc. He takes a fixed charges for the first two days and an additional charges for each day thereafter. Radhika paid Rs 22 for a book

and kept for six days, while Reshma paid Rs 16 when she kept for 4 days. Let the fixed charges be represented by Rs x and charges for each days be represented by Rs y .

Represent algebraically the situation of amount paid by Radhika.

A. $x - 2y = 11$

B. $x - 2y = 22$

C. $x + 4y = 22$

D. $x - 4y = 22$

Answer:



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8. A shopkeeper gives books on rent for reading. She takes a fixed charge for the first two days and an additional charge for each day thereafter. Latika paid Rs. 22 for a book kept for six days, while Anand paid Rs. 16 for the book kept for four days. Find the fixed charges and the charge for each extra day.

A. Rs 15

B. Rs 9

C. Rs 10

D. Rs 13

Answer:



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9. A shopkeeper gives books on rent for reading. She takes a fixed charge for the first two days and an additional charge for each day thereafter. Latika paid Rs. 22 for a book kept for six days, while Anand paid Rs. 16 for

the book kept for four days. Find the fixed charges and the charge for each extra day.

A. Rs 4

B. Rs 3

C. Rs 5

D. Rs 6

Answer:



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10. A shopkeeper gives books on rent for reading. She takes a fixed charge for the first two days and an additional charge for each day thereafter. Latika paid Rs. 22 for a book kept for six days, while Anand paid Rs. 16 for the book kept for four days. Find the fixed charges and the charge for each extra day.

A. Rs 35

B. Rs 52

C. Rs 50

D. Rs 58

Answer:



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