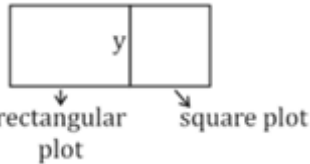


Quadrilateral Solution

1. **Answer: (C)**



Let the breadth of rectangular plot be y m and length = 15 m

ATQ,

$$30 + y + 3y = 390/5$$

$$\Rightarrow 30 + 4y = 78$$

$$\Rightarrow 4y = 48 \Rightarrow y = 12 \text{ m}$$

2. **Answer: (D)**

Area of square = 324 cm

Side of square = 18 cm

Length of rectangle = 18 + = 24 cm

$$\text{Breadth of rectangle} = \frac{4 \times 18 - 2 \times 24}{2} = 12 \text{ cm}$$

$$24 \times 12 = 288 \text{ cm}^2$$

3. **Answer: (A)**

Let, length = x m

Breadth = y m

$$x + y = \frac{160}{2}$$

$$x + y = 80 \dots\dots\dots(a)$$

$$\text{and } x - y = 48 \dots\dots\dots(b)$$

From eqⁿ (a) and eqⁿ (b)

$$x = \frac{128}{2} = 64 \text{ m}$$

$$\text{and } y = 16 \text{ m}$$

Area of square = Area of rectangle

$$(\text{Edge})^2 = 16 \times 64$$

$$\text{Edge} = 4 \times 8$$

$$\text{Edge of square} = 32 \text{ m}$$

4. **Answer: (D)**

Let length and breadth of the rectangle be l cm and b cm and side of the square be a cm.

ATQ,

$$l \times b = 4a^2$$

$$60 \times a = 4a^2$$

$$a = 15 \text{ cm}$$

5. **Answer: (D)**

Let length = l

$$\therefore \text{breadth} = \frac{96}{l}$$

$$\therefore (l + 6) \left(\frac{96}{l} - 3 \right) = 6$$

$$96 - 3l + \frac{96 \times 6}{l} - 18 = 66$$

$$12 = 3l + \frac{96 \times 6}{l}$$

$$l = \frac{192}{l} = 4$$

$$l^2 - 192 = 4l$$

$$l^2 - 4l - 192 = 0$$

$$(l + 12)(l - 16) = 0$$

$$\therefore l = 16 \text{ (because } l \neq -12)$$

$$\therefore \text{Perimeter of square} = 4 \times 16 = 64 \text{ cm}$$

6. **Answer: (A)**

Let the sides be $3k$ and $4k$, respectively.

$$\therefore 3k \times 4k = 7500 \Rightarrow k^2 = 625 \Rightarrow k = 25$$

$$\therefore \text{Length} = 100, \text{Width} = 75$$

$$\text{Perimeter} = 350 \text{ m}$$

$$\therefore \text{Cost of fencing} = 350 \times 0.25 = \text{Rs. } 87.50$$

7. **Answer: (C)**

Perimeter of square = 4 × side

$$\therefore 4 \times \text{side} = 128 \text{ meter}$$

$$\Rightarrow \text{Side} = \frac{128}{4} = 32 \text{ meter}$$

$$\therefore \text{Area of square} = 32 \times 32 = 1024 \text{ sq. meter}$$

$$\therefore \text{Area of rectangle} = (1024 - 52) \text{ sq. meter} = 972 \text{ sq. meter}$$

$$\therefore \text{Length of rectangle} = \frac{\text{Area}}{\text{Breadth}} = \frac{972}{27}$$

$$= 36 \text{ meter}$$

$$\therefore \text{Perimeter of rectangle}$$

$$= 2(l + b) = 2(36 + 27)$$

$$= 2 \times 63 = 126 \text{ meter}$$

8. **Answer: (C)**

Let length & breadth of rectangle be $4x$ cm & $7x$ cm

$$\text{ATQ, } 2(4x + 7x) = 88$$

$$x = 4$$

$$\text{Area of rectangle} = 4x \times 7x = 488 \text{ cm}^2$$

9. **Answer: (A)**

Let length and breadth of rectangular field be $4x$ and $9x$ respectively

ATQ,

$$2 \times (4x + 9x) \times 4 = 208$$

$$x = 2$$

$$\text{Area of rectangle field} = 4 \times 2 \times 9 \times 2$$

- $= 144m^2$
10. **Answer: (D)**
We know that, area of rectangle, $A = \text{length} \times \text{breadth}$
 \therefore The area of the field $= 130 \times 90 = 11700 m^2$
Now, a road of 15 m width is built just inside the borders of the field.
 \therefore the length and breadth of inner rectangle would be **15 metres less on both sides** than the outer rectangle.
 \therefore Length of inner rectangle
 $= 130 - 15 - 15 = 100 m$
Breadth of inner rectangle
 $= 90 - 15 - 15 = 60 m$
 \therefore Area of inner rectangle
 $= 100 \times 60 = 6000 m^2$
Now, area of road = area of rectangular field – area of inner rectangle
 \therefore area of road $= 11700 - 6000 = 5700 m^2$

11. **Answer: (A)**
Given:
Ratio of Breadth and length of rectangle = 4:7
Perimeter = 88 cm
Formulae used:
Perimeter $= 2(L + B)$
Area = Length \times Breadth
Calculation:
Let the breadth and length be $4x$ and $7x$ respectively
So, perimeter of rectangle $= 2(L + B)$
 $\Rightarrow 2(7x + 4x) = 88cm$
 $\Rightarrow 2 \times 11x = 88 cm$
 $\Rightarrow 22x = 88 cm$
 $\Rightarrow x = 4 cm$
So, Breadth $= (4 \times 4) cm = 16 cm$
Length $= (7 \times 4) cm = 28 cm$
Now, Area = Length \times Breadth
 $\Rightarrow (28 \times 16) cm^2 = 448 cm^2$
 \therefore The area of rectangle is $448 cm^2$

12. **Answer: (A)**
The breadth of a rectangle is $\frac{2}{3}$ rd of its length.
The area of another rectangle which is thrice the area of the first rectangle is $7200 cm^2$
Calculation:

Let the length (l1) of the first rectangle be x .
Then breadth (b1) of the first rectangle $= \frac{2x}{3}$
So, the area of rectangle $= x \times (\frac{2x}{3}) = \frac{2x^2}{3} cm^2$
Now by the question, the area of another rectangle which is thrice the area of the first rectangle is $7200 cm^2$
 $\Rightarrow 3 \times (\frac{2x^2}{3}) = 7200$
 $\Rightarrow x^2 = 3600$
 $\Rightarrow x = 60 cm$
 \Rightarrow Length (l1) $= 60 cm$ and breadth
 $= (\frac{2}{3}) \times 60 = 40 cm$
The perimeter of the first rectangle
 $= 2 \times (l_1 + b_1) = 2 \times (60 + 40) = 200 cm$.
 \therefore The perimeter of the first rectangle is 200 cm.

13. **Answer: (E)**
From I
Let's length of larger rectangle and smaller rectangle be $5x$ and $4x$ respectively.
 $2(5x + b) - 2(4x + b) = 8$
Form II
Breadth of rectangle = side of square
Side of square $= 14 cm$
So, Neither statement I or statement II sufficient.

14. **Answer: (A)**
Let side of square be ' $4x$ ' cm
So, length of rectangle $= 4x \times \frac{3}{4} = 3x cm$
And, breadth of rectangle $= 2x cm$
ATQ,
 $4 \times 4x - 2(3x + 2x) = 36$
 $6x = 36$
 $x = 36$
Perimeter of triangle = Perimeter of rectangle
 $= 2(18 + 12) = 60 cm$

15. **Answer: (A):**
Given:
Perimeter of rectangle $= 420 m$
Length = Breadth + 30 m
Rate of speed $= 10 m/s$
Formula used:
Perimeter of rectangle $= 2 \times (\text{Length} + \text{Breadth})$
Length of diagonal $= \sqrt{(\text{Length}^2 + \text{Breadth}^2)}$

Time taken = Distance/Speed

Calculation:

Let the breadth of rectangle be x meter

Then, length of rectangle = $(x + 30)$ m

Now, according to question,

$$2 \times (x + x + 30) = 420 \text{ m}$$

$$\Rightarrow 2 \times (2x + 30) = 420 \text{ m}$$

$$\Rightarrow 4x + 60 = 420 \text{ m}$$

$$\Rightarrow 4x = 360$$

$$\Rightarrow x = 90$$

Breadth = 90 m

Length = $(90 + 30)$ m

$$\Rightarrow 120 \text{ m}$$

Length of diagonal = $\sqrt{(120^2 + 90^2)}$ m

$$\Rightarrow \sqrt{(14400 + 8100)} \text{ m}$$

$$\Rightarrow \sqrt{22500} \text{ m}$$

$$\Rightarrow 150 \text{ m}$$

So, Time taken = $150/10$ seconds

$$\Rightarrow 15 \text{ seconds}$$

\therefore The time taken to cross diagonally is 15 seconds

16. Answer: (E)

Cost price per unit is not given.

17. Answer: (D)

18. Answer: (D)

Let width of the path = x cm

So, length of the park will be = $(x + 4)$ cm

So,

$$\frac{4}{3} \times (\text{Area of path}) = \text{Area of the park}$$

$$= > \frac{4}{3} [x(x + 4) - (x - 4)(x + 4 - 4)]$$

$$= x(x + 4)$$

From this equation we can find out the value of x and hence all value can be find out.