

## Circle Solution

1. **Answer: (C)**

Let radius  $\rightarrow 7x, 4x$

$$\text{Required ratio} = \frac{(7x)^2 \times \pi}{(4x)^2 \times \pi} = \frac{49}{16}$$

2. **Answer: (C)**

Circumference of any circle =  $2\pi \times \text{radius}$

$$\text{Radius of 1st circle} = \sqrt{\frac{1386}{\pi}} = 21\text{cm}$$

$$\text{Radius of 2nd circle} = \frac{176}{2\pi} = 28\text{cm}$$

Side of square

$$= \frac{5}{14} \times 2 \times (21 + 28) = 35\text{cm}$$

$$\text{Perimeter of square} = 4 \times 35 = 140\text{ cm}$$

3. **Answer: (D):**

The correct answer is Option 4 i.e.  $256\text{ m}^2$

Suppose radius of circle is 'r' and side of square is 'a'.

According to the question:

$$2 \times 22/7 \times r : 4 \times a = 33 : 16$$

$$11r : 7a = 33 : 16$$

$$16r = 21a \dots\dots\dots (1) \text{ And}$$

$$r + a = 37 \dots\dots\dots (2) \text{ From both equations:}$$

$$r = 21 \text{ and } a = 16$$

$$\text{Hence, area of square} = 16^2 = 256\text{ m}^2$$

4. **Answer: (B)**

**Given:**

The radius of the actual circle = 14 cm

The radius of another circle = 1.5 time of the actual circle

**Formula used:**

$$\text{Area of circle} = \pi r^2$$

Where,

$r \rightarrow$  Radius of circle

**Calculation:**

The radius of another circle = 1.5 time of the actual circle

$$\Rightarrow 1.5 \times 14$$

$$\Rightarrow 21$$

$$\text{Area of circle} = \pi r^2$$

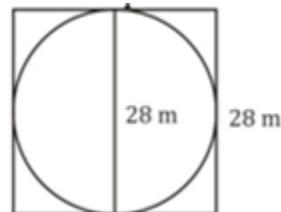
$$\Rightarrow (22/7) \times 21 \times 21$$

$$\Rightarrow 1,386\text{ cm}^2$$

$\therefore$  Area of the circle is  $1,386\text{ cm}^2$

5. **Answer: (D)**

Area of the space left out = Area of square  
– Area of circle



$$= (28)^2 - \frac{22}{7} \times 14 \times 14$$

$$= 28 \left( 28 - \frac{11 \times 14}{7} \right)$$

$$= 28(28 - 22)$$

$$= 28 \times 6$$

$$= 168\text{ m}^2$$

6. **Answer: (C):**

The correct answer is Option 3 i.e. 1 : 2

Suppose the length of side of equilateral triangle is 'x' cm and the radius of the circle is 'r' cm.

$$\text{Area of an equilateral Triangle} = (\sqrt{3}/4) \times x^2$$

$$\text{Area of circle} = \pi r^2$$

Given:

Ratio of areas of an equilateral triangle to a circle is  $\sqrt{3} : 16\pi$

$$\text{So, } [(\sqrt{3}/4) \times x^2] : \pi r^2 = \sqrt{3} : 16\pi$$

$$\Rightarrow x^2/r^2 = 1/4$$

$$\Rightarrow x : r = 1 : 2$$

7. **Answer: (C)**

$$\text{Total cost} = \text{Area of circle} \times \text{Rate}$$

$$3465 = \pi r^2 \times 10$$

$$\Rightarrow 3465 = 22/7 \times r^2 \times 10$$

$$\Rightarrow r^2 = 3465 \times 7 / 22 \times 1/10$$

$$\Rightarrow r^2 = 110.25$$

$$\Rightarrow r = 10.5\text{ cm}$$

$$\text{Now, side of square} = 2 \times r$$

$$\Rightarrow S = 2 \times 10.5 = 21\text{cm}$$

$$\therefore \text{Perimeter} = 4 \times S = 4 \times 21 = 84\text{cm}$$

8. **Answer: (C)**

Let radius be r cm

$$132 = 2 \times \frac{22}{7} r \Rightarrow r = 21\text{cm} \Rightarrow l = 42\text{cm}$$

Let length, breadth of rectangle be  $l, b$  cm respectively

Square is attached along breadth of rectangle,

edge of square =  $b$  cm

Increase in area = area of square

$$b^2 = 144 \Rightarrow b = 12 \text{ cm}$$

$$\text{Area of rectangle} = lb = 42 \times 12 = 504 \text{ cm}^2$$

9. **Answer: (D)**

$$2\pi r + 2(l + b) = 220 \text{ cm}$$

$$\pi r^2 = 1386 \text{ sq. cm}$$

$$r^2 = \frac{1386 \times 7}{22}$$

$$r = 21 \text{ cm}$$

Length of rectangle

$$= 21 \times \frac{4}{3} = 28 \text{ CM}$$

$$2 \times \frac{22}{7} \times 21 + 2(28 + b) = 220$$

$$132 + 56 + 2b = 220$$

$$b = \frac{32}{2} = 16 \text{ cm}$$

$$\text{Area of rectangle} = (28 \times 16) = 448 \text{ cm}^2$$

10. **Answer: (B)**

$$\angle O = 2 \times 55^\circ = 110^\circ$$

$$x^\circ = 180 - (75^\circ + (90^\circ - 35^\circ))$$

$$x^\circ = 50^\circ$$

$$\text{so, } x < 55^\circ$$

11. **Answer: (C)**

ATQ,

$$2r + R = 42 \dots (i)$$

Let radius of another circle be  $x$ .

$$2\pi x = \frac{300}{100} [2\pi r + \pi R] \dots (ii)$$

From (i) and (ii),

$$x = 63 \text{ cm}$$

12. **Answer: (A)**

Quantity I:

Let length of rectangle =  $L$

Breadth of rectangle =  $b$

$$\text{Radius of circle} = \frac{b}{2}$$

Now,

$$L \times b = 2 \times \pi \left(\frac{b}{2}\right)^2$$

$$L = \frac{\pi b}{2}$$

$$\% \Rightarrow \left(\frac{\frac{\pi b}{2} - b}{b}\right) \times 100$$

$$= \frac{4 \times 100}{7} = 57\frac{1}{7}\%$$

Quantity II:

Square get change into the rectangle.

By increasing 10 cm two opposite sides,

Area increased  $\rightarrow 400$

$$\text{Side} \rightarrow \frac{400}{10} = 40 \text{ cm}$$

$$\text{Area of square} = 40 \times 40 = 1600 \text{ square cm.}$$

$$\% \text{ by which area increased} \rightarrow \frac{400}{1600} \times 100 = 25\%$$

Quantity I > Quantity II

13. **Answer: (C)**

$$\text{Total area of apple pie} = X \times 0.77 \text{ cm}^2$$

ATQ,

$$(X - 3) \times 0.616 \times 2 = X \times 0.77$$

$$\Rightarrow X = 8$$

14. **Answer: (E)**

Radius of original pie be  $R$  cm.

$$\text{Area of the pie} = 8 \times 0.77 \text{ cm}^2$$

ATQ,

$$\pi R^2 = 8 \times 0.77$$

$$\Rightarrow R = \frac{7}{5} \text{ cm.}$$

Required circumference

$$= 2 \times \frac{22}{7} \times \frac{7}{5} = 8.8 \text{ cm}$$

15. **Answer: (B)**

$$\text{Total area of entire pie} = 0.77 \times 8 \text{ cm}^2$$

Required area of each piece

$$= \frac{0.77 \times 8}{11} = 0.56 \text{ cm}^2$$