# (Olympiad Excellence Question)

## QUESTIONS

**1.** The distance around a simple closed figure is called its

(a) Area (b) Perimeter (c) Volume (d) Triangle

**2.** 9g =_____Kg.

(a) 0.9 Kg (b) 0.009 kg (c) 0.232 Kg (d) 0.242 kg

**3.** 5000 decagram = _____ Kg.

(a) 50 (b) 60 (c) 70 (d) 100

**4.** The amount of surface enclosed by a closed figure is called its _____

(a) Perimeter (b) Area (c) Volume (d) Circle

**5.** What is the perimeter of Rectangle?

(a) $4 \times side$ (b) $3 \times side$ (c) $2(l + b)$ (d) $(side)^2$

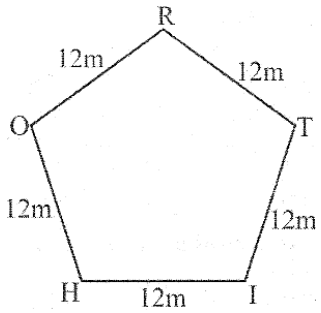
**6.** What is the area of square?

(a) Side×Angle (b) $l \times b$ (c) $Side \times Side$ (d) $4 \times side$

**7.** How many rectangles can be drawn with 24 cm as perimeter, given that the length of sides are positive integers?

(a) 5 (b) 9 (c) 7 (d) 8

**8.** Find the perimeter of the given figure.




(a) 60 cm (b) 40 cm (c) 50 cm (d) 44 cm

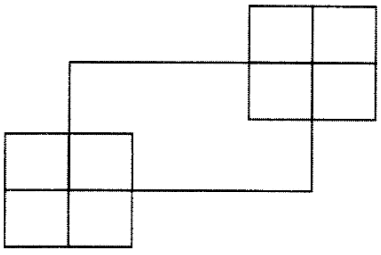
**9.** What is the area of Square of side 12 cm?

(a) 144 $cm^2$ (b) 136 $cm^2$ (c) 169 $cm^2$ (d) 126 $cm^2$

**10.** The area of a rectangle is 180 Sq. cm. What is its length if its breadth is 12 cm?

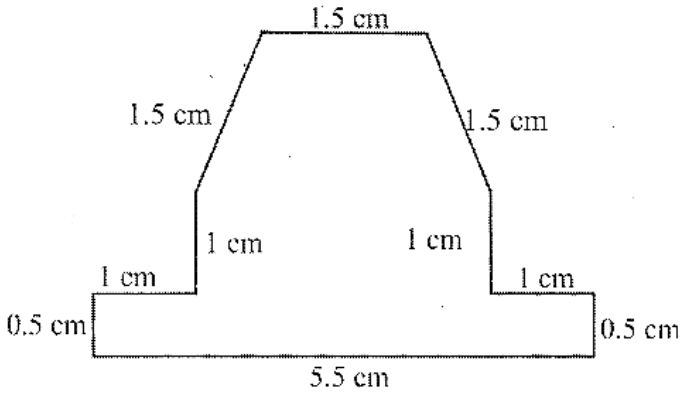
(a) 20 cm (b) 15 cm (c) 22 cm (d) 40 cm

**11.** How many squares are there in the given figure?.



(a) 10 (b) 12 (c) 13 (d) 14

**12.** Find the perimeter of the given figure.1.5 cm

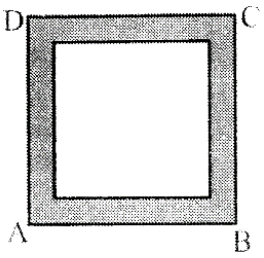



(a) 15 cm (b) 20 cm (c) 30 cm (d) 40 cm

**13.** Find the length of side of a square of area 256 $cm^2$ .

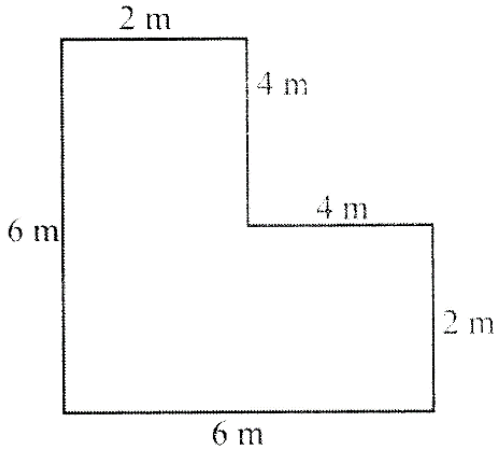
(a) 16 cm (b) 14 cm (c) 15 cm (d) 36 cm

**14.** It is given that ABCD and EFGH are two squares and its sides are 14 cm and 10 cm respectively, find the Area of the shaded region.




(a) 96 $cm^2$ (b) 94 $cm^2$ (c) 15 $cm^2$ (d) 18 $cm^2$

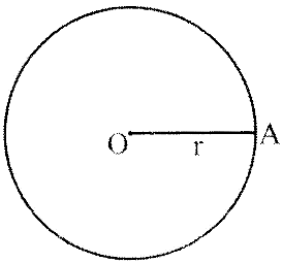
**15.** Mrs. Razdan wants to use tiles of length 20 cm and breadth 10 cm to cover the floor of her balcony shown in the figure. What is the area of balcony? How many tiles does she need to buy (1 *Sqm* = 10,000 *Sq. cm*) ?




(a) 20 Sq.m, 1000 tiles (b) 30 Sq.m, 2000 tiles

(c) 40 Sq.m, 5000 tiles (d) 50 Sq.m, 2000 tiles

**16.** Find the area of the given figure.




(a) $\pi r^2$ (b) $2\pi r$ (c) $\frac{\pi}{2}$ (d) $\pi^2 r$

**17.** What will happen to the area of a square if its side is doubled?

(a) 4 times (b) 6 times (c) 8 times (d) None of these

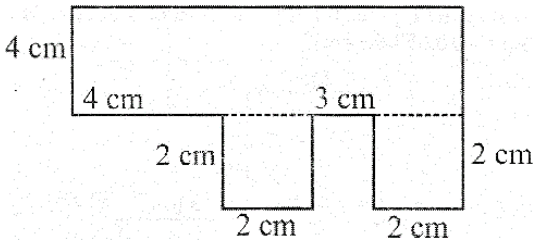
**18.** A marble tile measure 25 cm by 20 cm. How many tiles be required to cover a wall of size 4 in by 3 m?

(a) 120 (b) 230 (c) 240 (d) 200

**19.** Find the cost of fencing a square park of side 30 m at the rate of Rs. 20 per meter,

(a) Rs. 23000 (b) Rs. 26000 (c) Rs. 2400 (d) Rs. 27000

**20.** Find the area of the given figure,

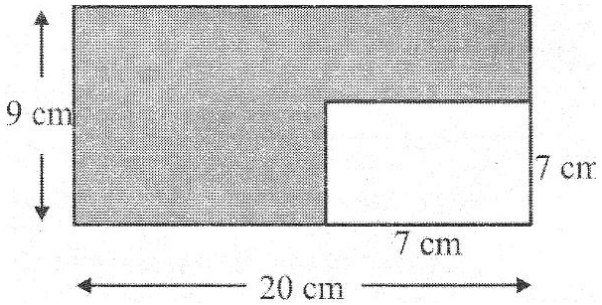



(a) 52 $cm^2$ (b) 42 $cm^2$ (c) 60 $cm^2$ (d) 70 $cm^2$

**21.** The total cost of flooring a room at Rs. 8.50 per Square meter is Rs. 510. If the length of the room is 8 meters, find its breadth

(a) 7.5 m (b) 8.5 m (c) 6.5 m (d) 9.5 m

**22.** In the given figure, what is the area of shaded portion?

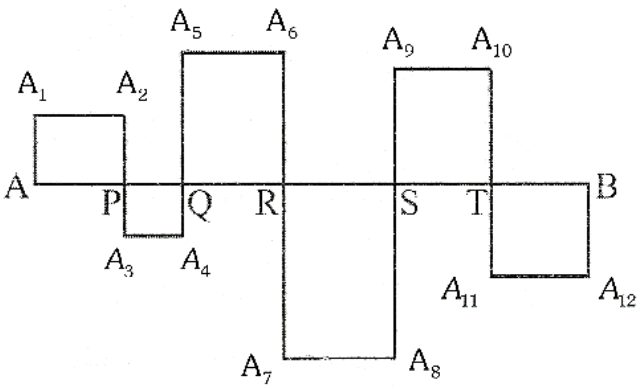



(a) 144 $cm^2$ (b) 131 $cm^2$ (c) 124 $cm^2$ (d) 126 $cm^2$

**23.** A square lawn is surrounded by a path 2.5 wide. If the of the path is 165 $m^2$ . Find the area of the lawn.

(a) 196 $m^2$ (b) 194 $m^2$ (c) 169 $m^2$ (d) 167 $m^2$

**24.** AB is a line segment 2017 cm long. Squares are drawn as shown in the diagram. The length of the line segment $AA_1A_2A_3A_4A_5A_6A_7A_8A_9A_{10}A_{11}A_{12}B$ is

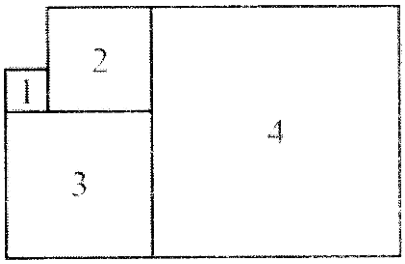



(a) 2017 cm (b) 4022 cm (c) 6051 cm (d) 7051 cm

**25.** The perimeter of the floor of a room is 18 m and its height is 3 in. What is the area of 4 walls of the room?

(a) 21 $m^2$ (b) 42 $m^2$ (c) 54 $m^2$ (d) 108 $m^2$

**26.** In the figure 1, 2, 3, and 4 are Squares. The perimeter of the Square 2 a respectively 16 and 20 units. Find the area of whole figure.




(a) 320 Sq. unit (b) 318 Sq. unit (c) 314 Sq. unit (d) 321 Sq. unit

**27.** In the given, figure find the area of shaded region.

(a) 120 $cm^2$ (b) 150 $cm^2$ (c) 140 $cm^2$ (d) 160 $cm^2$

**28.** A Square lawn has a 2m wide path surrounding it. If the area of the path is 136 $m^2$. Find the area of the lawn.

(a) 225 $m^2$ (b) 220 $m^2$ (c) 330 $m^2$ (d) 340 $m^2$

**29.** On increasing each side of a square by 25%, the increase in area will be

(a) 25% (b) 55% (c) 40.5% (d) 56.25%

**30.** If the ratio of the areas of two squares is 9 : 1, then the ratio of their perimeter is

(a) 2 : 1 (b) 3 : 1 (c) 3 : 2 (d) 4 : 1

| ANSWER - KEY | | | | |
|---|---|---|---|---|
| **1.** B | **2.** B | **3.** A | **4.** A | **5.** C |
| **6.** C | **7.** A | **8.** A | **9.** A | **10.** B |
| **11.** A | **12.** A | **13.** A | **14.** A | **15.** A |
| **16.** A | **17.** A | **18.** C | **19.** C | **20.** A |
| **21.** A | **22.** B | **23.** A | **24.** C | **25.** C |
| **26.** B | **27.** B | **28.** A | **29.** D | **30.** B |

# Answers with Solutions

**1.** (b) Perimeter

**2.** (b) $\frac{9}{1000} = 0.009$

**3.** (a) $\frac{5000}{100} = 50$

**4.** (a) Area

**5.** (c) $2\,(l + b)$

**6.** (c) side $\times$ side

**7.** (a) We have, perimeter = 24 cm

$\Rightarrow 2(l + b) = 24$ , hence possible dimensions are (1, 11), (2, 10), (3, 9), (4, 8)

**8.** (a) $HO + OR + RT + TI + IH = 12 + 12 + 12 + 12 + 12 = 60\ cm$

**9.** (a) Area of Square

$= side \times side = 12 \times 12 = 144\ cm^2$

**10.** (b) Area $= 180\ cm^2 = l \times b = 180\ cm^2$

$1 \times 12 = 180\ cm^2$

$1 = \frac{180}{12} = 15\ cm$

**11.** (a) 10

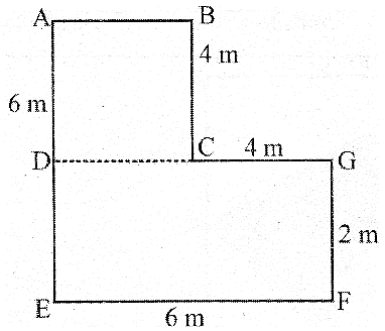
**12.** (a) Sum of all sides=1.5 + 1.5 + 1.5 + 1 + 1 + 0.5 + 5.5 + 0.5 + 1 + 1 = 15 cm.

**13.** (a) Area of square $= 256\ cm^2$

**14.** (a) Area of Shaded region=Area of Square ABCD – Area of square EFGH

$(14)^2 - (10)^2 = 196 - 100 = 96\ cm$

**15.** (a)




Area of ABCD $= 2\ m \times 4\ m = 8\ m^2$

Area of DEFG $= 6\ m \times 2\ m = 12\ m^2$

Total Area $= (8 + 12) m^2 = 20\ m^2$

Tiles area $= \frac{20 \times 10}{10000} m^2 = \frac{2}{100} m^2$

No. of tiles $= \frac{20 \times 100}{2} = 1000$ tiles

**16.** (a) $m^2$

**17.** (a) $\frac{(2x)^2}{x^2} = \frac{4x^2}{x^2} = 4$ *times*

**18.** (c) Area of wall $= 400 \times 300 = 120000\ cm^2$

Area of Marble tile $= 25 \times 20 = 500\ cm^2$

$\therefore$ No. of tiles required to cover a wall

$= \frac{120000}{500} = 240$

**19.** (c) Perimeter $= 4 \times 30 = 120\ m$

$\therefore$ Cost $=$ *Rs.* $20 \times 120 =$ *Rs.* 2400

**20.** (a) Not Available

**21.** (a) Breadth be $b$

Then Area $= 8b\ m^2$

& Cost $=$ *Rs.* 510

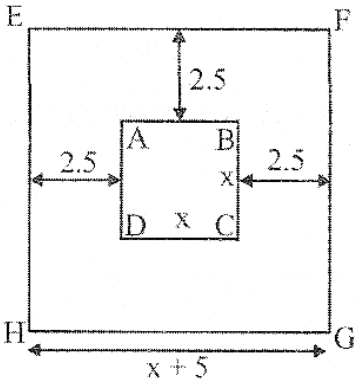
$\therefore$ Area $= \frac{5100}{85} = 60\ m^2$

$= 8 \times b = 60\ m^2$

$\therefore\ b = \frac{60}{8} = \frac{15}{2} m = 7.5\ m$

**22.** (b) Not Available

**23.** (a)




Area of EFGH

$= (x + 2.5\ m + 2.5\ m) \times (x + 2.5\ m + 2.5\ m)$

$= (x + 5\ m)^2$

Area of $ABCD = x^2$

$\therefore$ Area of path

$= (x + 5\ m)^2 - x^2 = x^2 + 25\ m^2 + 10x - x^2 = 165\ m^2$

$10x = 165\ m - 25\ m$

$10x = 140\ m$

$x = 14\ m$

Area of lawn $= x^2 = (14\ m)^2 = 196\ m^2$

**24.** (c) $AA_1A_2A_3A_4A_5A_6A_7A_8A_9A_{10}A_{11}A_{12}B =$

$x + x + x + y + y + y + z + z + z + a + a + a + b + b = b + c + c + c$

$= 3x + 3y + 3z + 3a + 3b + 3c = 3(a + b + c + x + y + z)$ … (i)

$AB = 2017\ cm = x + y + z + a + b + c$ … (ii)

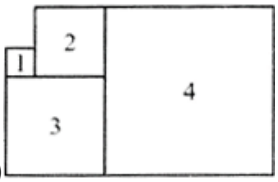
Putting (ii) in (i)

$\Leftrightarrow 3 \times 2017\ cm = 6051\ cm$

**25.** (c) $P = 18\ m$,

Area of four walls $= 2(l + b) \times h = 18 \times 3 = 54\ cm^2$

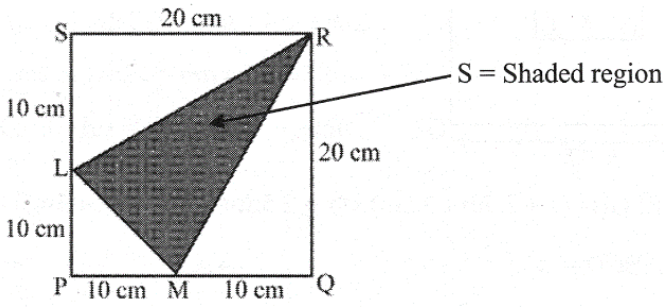
**26.** (b)




Area of whole fig $= 4^2 + 5^2 + 9^2 + 14^2$

16 Sq. units + 25 Sq. units + 81 Sq. units + 196 Sq. units = 318 Sq. units

**27.** (b)



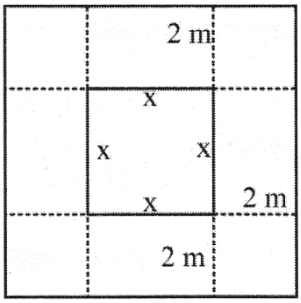

Area of $\Delta S =$

$\frac{1}{2} \times 20 \times 10\ cm^2 + \frac{1}{2} \times 10 \times 10\ cm^2 + \frac{1}{2} \times 20 \times 10\ cm^2 = 100\ cm^2 + 100\ cm^2 + 50\ cm^2 = 250\ cm^2$

$\therefore$ Area of shaded part

$= 400\ cm^2 - 250\ cm^2 = 150\ cm^2$

**28.** (a)




Area of path

$= (x \times 2 + x \times 2 + x \times 2 + x \times 2 + 4 + 4 + 4 + 4) m^2$

$= (2x + 2x + 2x + 16) m^2$

$= (8x + 16x) m^2 = 136\ m^2$

$8x = 120\ m^2$

$x = 15\ m$

$x^2 = 225\ cm^2$

**29.** (d) $x =$ Side before increase

$x^2 =$ Area before increase

$\frac{125x}{100} =$ Side after increase

$\frac{25x^2}{16} =$ Area after increase

Increase in area $= \dfrac{\frac{25x^2 - 16x^2}{16} \times 100\%}{x^2}$

$= \frac{9x^2}{16x^2} \times 100 = \frac{225}{4} = 56.25\%$

**30.** (b) $x^2 : y^2 - 9 : 1$

$x : y = 3 : 1$

$\therefore 4x : 4y = 12 : 4 = 3 : 1$