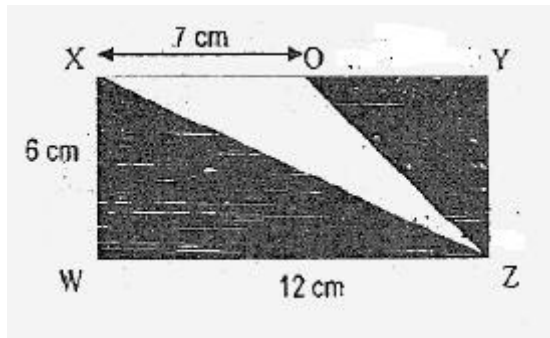


WXYZ is a rectangle. Find the area of the shaded part.



Solution

Area of rectangle ---- $12 \text{ cm} \times 6 \text{ cm} = 72 \text{ square cm}$

Area of unshaded triangle ----

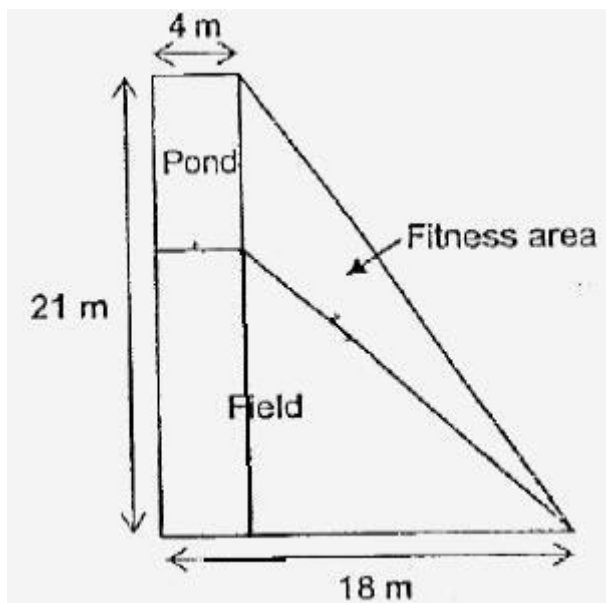
$\frac{1}{2} \times \text{base} \times \text{height}$

$= \frac{1}{2} \times 7 \text{ cm} \times 6 \text{ cm} = 21 \text{ square cm}$

Area of shaded part ----

$(72 - 21) \text{ square cm} = \mathbf{51 \text{ square cm (Answer)}}$

he figure below shows a park which is made up of a triangular fitness area, a rectangular pond and a field in the shape of a trapezium. The length of the pond is twice its breadth.



a) The cost of fencing material is \$3 per meter. How much will it cost to fence up the pond?

b) What is the area of the park?

Solution

a)

Length of pond ---- $2 \times 4 \text{ m} = 8 \text{ m}$

Perimeter of pond ---- $2 \times (8 + 4) \text{ m} = 24 \text{ m}$

1 m ---- \$3

24 m ---- $\$3 \times 24 = \72

Answer: It will cost \$72 to fence up the pond.

b)

Area of rectangle -----

$$21 \text{ m} \times 4 \text{ m} = 84 \text{ square m}$$

Area of triangle -----

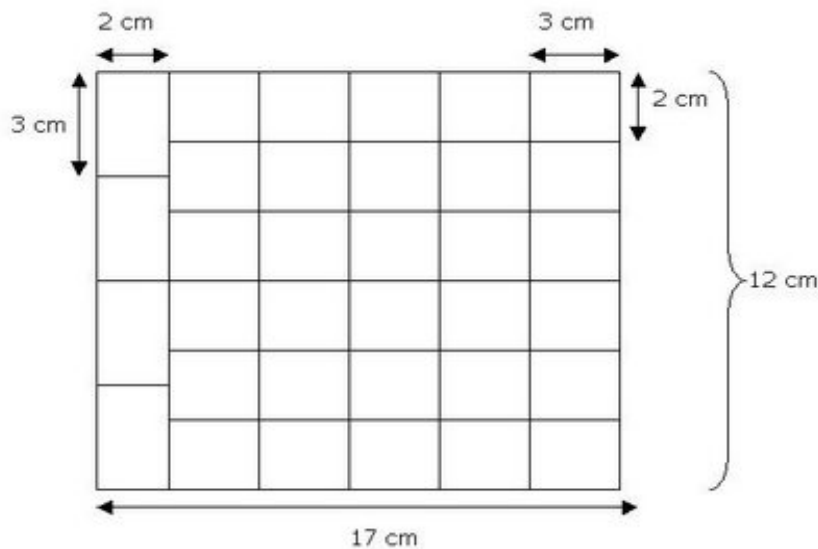
$$\frac{1}{2} \times 14 \text{ m} \times 21 \text{ m} = 147 \text{ square m}$$

Total area of the park ----- $(84 + 147)$ square m = **231 square**

A rectangular piece of cardboard measures 17 cm by 12 cm. Sushila cuts the greatest number of rectangular pieces, each measuring 3 cm by 2 cm, from the cardboard. What is the total area of all the pieces cut?

Solution

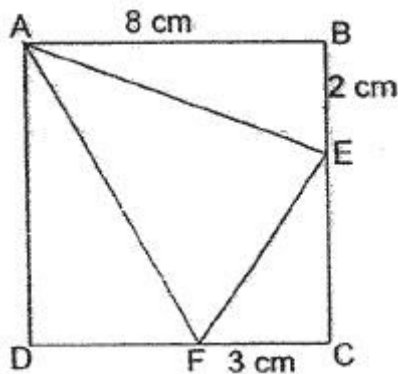
The diagram below is not drawn to scale



34 pieces of small rectangles can be cut without any cardboard left.

Area used ----- $17 \text{ cm} \times 12 \text{ cm} = \mathbf{204 \text{ square cm (Answer)}}$

In the figure, ABCD is a square of side 8 cm. BE is 2 cm and FC is 3 cm. Find the area of Triangle AEF.



Solution

Area of Square ABCD ----- $8 \text{ cm} \times 8 \text{ cm} = 64 \text{ square cm}$

Area of Triangle ABE ----- $\frac{1}{2} \times 8 \text{ cm} \times 2 \text{ cm} = 8 \text{ square cm}$

Area of Triangle CEF ----- $\frac{1}{2} \times 3 \text{ cm} \times 6 \text{ cm} = 9 \text{ square cm}$

Area of Triangle ADF ----- $\frac{1}{2} \times 5 \text{ cm} \times 8 \text{ cm} = 20 \text{ square cm}$

Area of Triangle AEF -----

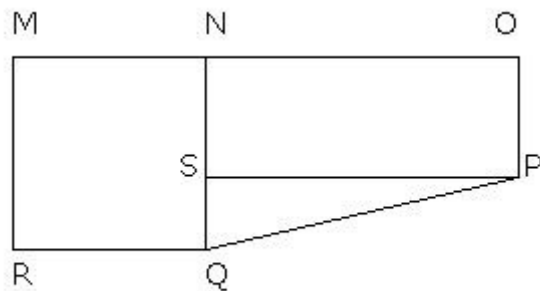
$(64 - 8 - 9 - 20) \text{ square cm} = 27 \text{ square cm (Answer)}$

The figure shown below is made up of a square, a rectangle and a right-angled triangle. The area of the square MNQR is 49 square cm and the area of the rectangle NOPS is 60 square cm. OP is 4 cm.

(a) Find the length of MR

(b) Find the length of SP

(c) Find the area of the triangle PSQ



Solution

(a)

Area of square MNQR = 49 square cm.

1 side is therefore 7 cm (7×7)

(b)

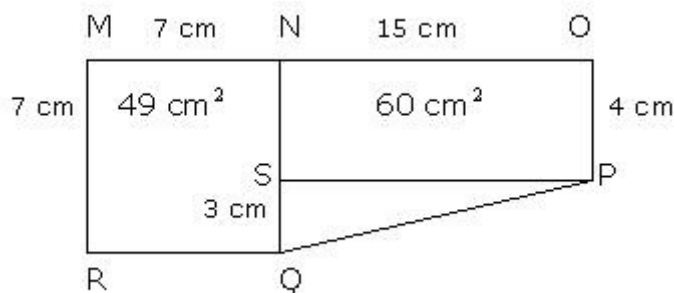
Area of rectangle NOPS is 60 square cm.

$60 \text{ square cm} = SP \times 4 \text{ cm}$

$SP = 60 \text{ square cm divided by } 4 \text{ cm} = 15 \text{ cm}$

Answer: 15 cm

(c)



$NQ = 7 \text{ cm}$, therefore

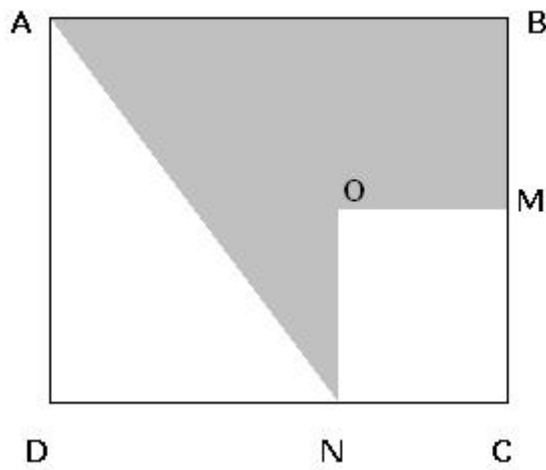
$SQ = 7 \text{ cm} - 4 \text{ cm} = 3 \text{ cm}$

Area of triangle PSQ = $\frac{1}{2} \times \text{base} \times \text{height}$

$= \frac{1}{2} \times 15 \text{ cm} \times 3 \text{ cm}$

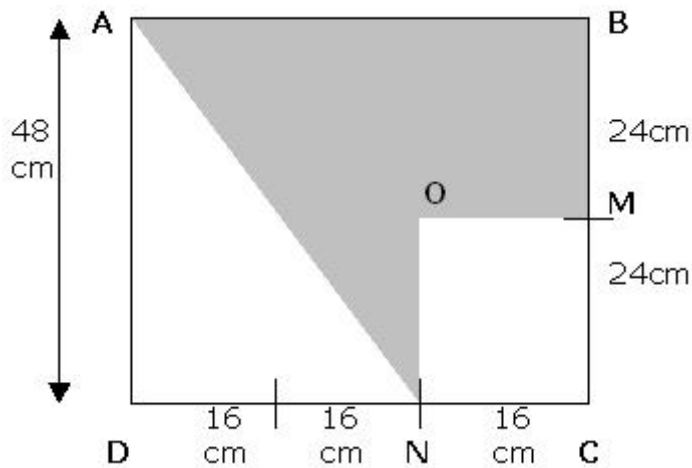
$= 22.5 \text{ square cm}$

Answer: 22.5 square cm



ABCD is a square. $AD = 48$ cm. Given that DN is twice as long as NC and $BM = MC$, find the area of the unshaded part.

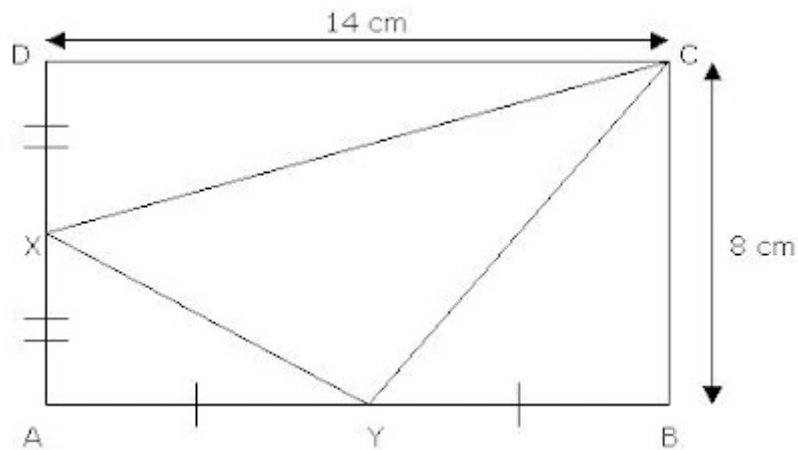
Solution



Area of Triangle ADN ----- $\frac{1}{2} \times \text{base} \times \text{height}$
 $= \frac{1}{2} \times 32 \text{ cm} \times 48 \text{ cm} = 768 \text{ square cm}$

Area of OMCN ----- $24 \text{ cm} \times 16 \text{ cm} = 384 \text{ square cm}$

Total unshaded area ----- $(768 + 384) \text{ square cm} = \mathbf{1152}$



ABCD is a rectangle (not drawn to scale). $AX = XD$ and $AY = YB$. Find the area of triangle CXY.

Solution

Area of rectangle ----- length x breadth
 $= 14 \text{ cm} \times 8 \text{ cm} = 112 \text{ square cm}$

Area of Triangle CDX ----- $\frac{1}{2} \times \text{base} \times \text{height}$
 $= \frac{1}{2} \times 14 \text{ cm} \times 4 \text{ cm} = 28 \text{ square cm}$

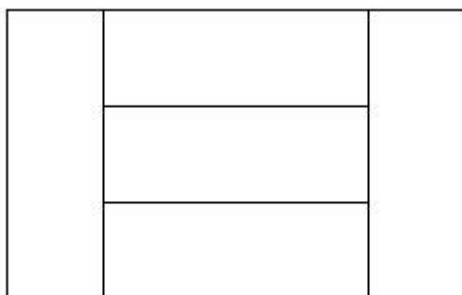
Area of Triangle AXY ----- $\frac{1}{2} \times 7 \text{ cm} \times 4 \text{ cm} = 14 \text{ square cm}$

Area of Triangle CBY ----- $\frac{1}{2} \times 7 \text{ cm} \times 8 \text{ cm} = 28 \text{ square cm}$

Area of Triangle CXY -----
 Area of rectangle – Area of Triangle CDX – Area of Triangle AXY – Area of Triangle BCY
 $= (112 - 28 - 14 - 28) \text{ square cm}$
 $= 42 \text{ square cm}$

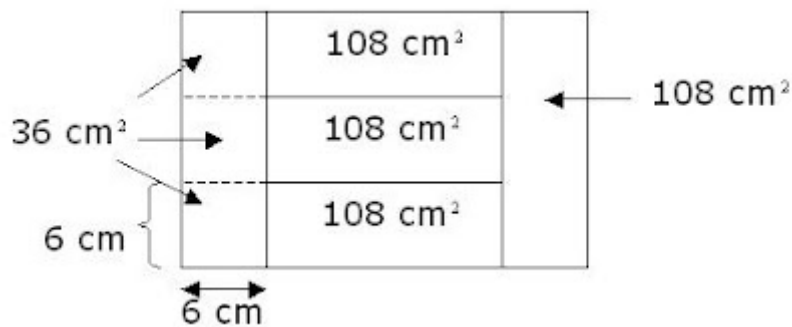
Answer: Area of Triangle CXY is 42 square cm.

The figure below is made up of five identical rectangles. If the total area of the figure is 540 square cm, find the perimeter of one rectangle.



Solution

Area of 1 rectangle ----- 540 square cm divided by 5 = 108 square cm



Length of rectangle is 3 times breadth rectangle, therefore, we can divide 1 rectangle into 3 equal parts as shown above.

The area of 1 square above ----- 108 square cm divided by 3 = 36 square cm

The side of this 1 unit square has to be 6 cm ($6 \times 6 = 36$)

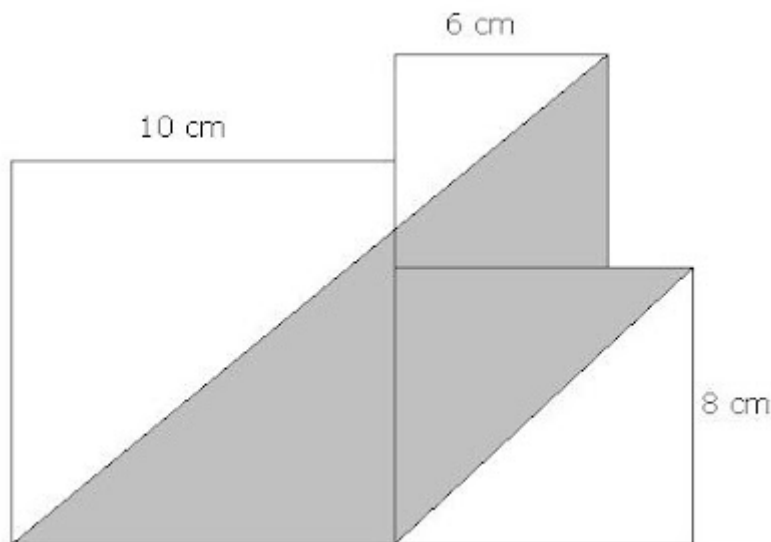
Since 1 side of the square is 6 cm, the length of 1 rectangle is -----
 $6 \text{ cm} \times 3 = 18 \text{ cm}$

The perimeter of 1 rectangle is therefore,

$$18 \text{ cm} + 6 \text{ cm} + 18 \text{ cm} + 6 \text{ cm} = 48 \text{ cm}$$

Answer: The perimeter of one rectangle is 48 cm.

The diagram below is made up of 3 squares. Find the area of the shaded area.



Solution

Area of shaded area is

Area of triangle ADC – Area of triangle BGC + Area of triangle EFG

Area of triangle ADC

$$\frac{1}{2} \times 16 \text{ cm} \times 14 \text{ cm} = 112 \text{ square cm}$$

Area of triangle BGC

CG = 6 cm because EG = EF = 2 cm

$$\text{Therefore area} = \frac{1}{2} \times 6 \text{ cm} \times 6 \text{ cm} = 18 \text{ square cm}$$