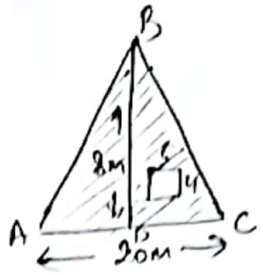
(Exercise :→ 15B)

Que. 1

(a) Area of $\triangle BAC = \frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 20 \times 8$

$= 80 m^2$



Area of Rectangle $= l \times b$

$= 5 \times 4 = 20 m^2$

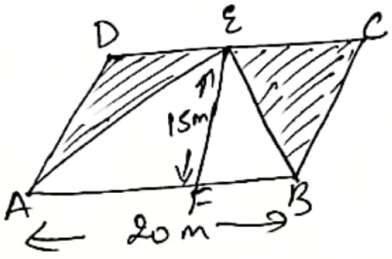
Area of shaded portion = Area of $\triangle$ − Area of Rect.

$= 80 - 20 = 60 m^2$

(b) Area of Parallelogram ABCD $= B \times h$

$= 20 \times 15$

$= 300 m^2$



Area of triangle $= \frac{1}{2} \times b \times h$

$= \frac{1}{2_1} \times \overset{10}{\cancel{20}} \times 15$

$= 150 m^2$

Area of shaded portion $= 300 - 150$

$= 150 m^2$.

(c). Area of shaded Region = Area of triangle

$= \frac{1}{2} \times b \times h$

$= \frac{1}{2_1} \times \overset{9}{\cancel{18}} \times 12$

$= 108 m^2$.

Q2

Sol. Area of Rhombus = 120 cm^2

One diagnol = 20 cm

other diagnol = x

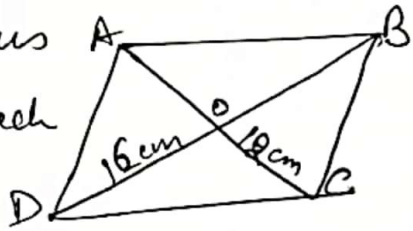
Area of Rhombus = $\frac{1}{2}$ × Product of diagnols

$$\frac{1}{2} \times 20 \times x = 120$$

$$x = \frac{120}{10}$$

$$\boxed{x = 12 \text{ cm}}$$

Sol 3. Let ABCD be the given Rhombus with AC & BD diagnols bisecting each other at right angles at O



$$AO = \frac{1}{2} \times 12 = 6 \text{ cm}$$

$$BO = \frac{1}{2} \times 16 = 8 \text{ cm}$$

In right angled $\triangle AOB$

By Pythagorus theorem

$$(AB)^2 = (AO)^2 + (OB)^2$$

$$= 6^2 + 8^2$$

$$= 36 + 64$$

$$AB^2 = 100$$

$$AB = 10 \text{ cm}.$$

Area of Rhombus $= \frac{1}{2} \times d_1 \times d_2$

$= \frac{1}{\cancel{2}_1} \times \cancel{12}^{6} \times 16$

$= 96\ cm^2$

Sol4. Diagnol $= 16\ m$

1st off set $= 6\ m$

2nd off set $= 8\ m$

Area of quadrilateral $= \frac{1}{2} \times$ diagnol $\times$ sum of off sets

$= \frac{1}{2} \times 16 \times (6+8)$

$= \frac{1}{\cancel{2}_1} \times \cancel{16}^{8} \times 14$

$= 112\ m^2$

Sol5. Area of quadrilateral $= 342\ m^2$

1st off set $= 12\ m$

2nd off set $= 12\ m$

Let diagnol $= x$

Area $= \frac{1}{2} \times$ diagnol $\times$ sum of off sets

$342 = \frac{1}{2} \times x \times (12+12)$

$\frac{1}{\cancel{2}_1} \times x \times \cancel{24}^{12} = 342$

$x = \frac{342}{\cancel{12}_{2}}^{57} = 28.5\ m$

Sol 6. 1st Parallel side = 36 cm

2nd Parallel side = 64 cm

Height of trapezium = 20 cm

Area of trapezium $= \frac{1}{2} \times h \times$ sum of Parallel sides

$= \frac{1}{2} \times 20 \times (36+64)$

$= \frac{1}{\cancel{2}_1} \times \cancel{20}^{10} \times 100$

Area = 1000 cm^2

Sol 7.

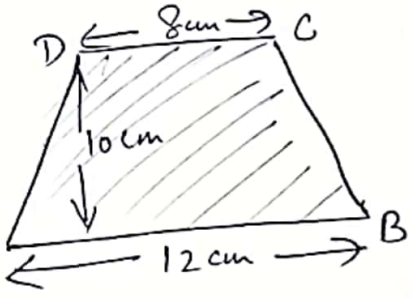
(a) Area of shaded portion =

Area of trapezium ABCD

$= \frac{1}{2} \times$ sum of Parallel sides $\times h$

$= \frac{1}{2} \times (12+8) \times 10$

$= \frac{1}{\cancel{2}_1} \times \cancel{20}^{10} \times 10 = 100 cm^2.$

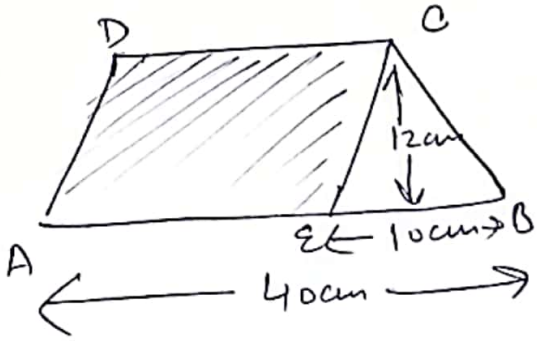


(b). Area of Parallelogram

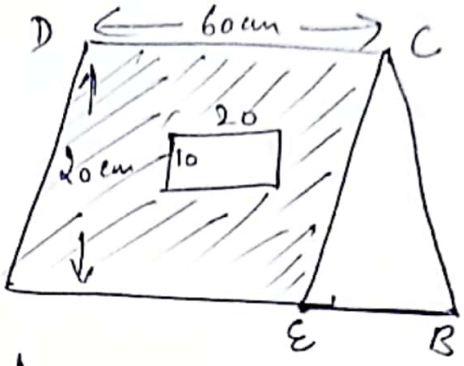
= Base $\times$ Height

$= 30 \times 12$

$= 360 cm^2.$



(c) Area of shaded portion =



Area of llgm ABDC = B x h

= 60 x 20

= 1200 cm².

Area of unshaded Rectangle = l x b

= 20 x 10

= 200 cm²

Area of Shaded Portion = 1200 − 200 = 1000 cm².

Sol 8. Let side of square = x

Area of Square = x x x = x^2

New side = 2 x x = 2x

New Area = 2x x 2x

= $4x^2$.

So, New Area is 4 times the original Area.

Sol 9. Let length of Rectangle = l

Let base of Rectangle = b

Area of rectangle = l x b = lb

New base = 2b

New length = 2l

Area of Rectangle = 2b x 2l

= 4bl.

So Area of New Rectangle is 4 times the original Area.

Sol 10. Let base = b

height = h

Area = b × h = bh

New base = 2b

New height = 2h

New Area = 2b × 2h = 4bh

So Area of new Parallelogram is 4 times the original one.

Sol 11. Let base of △ = b

Altitude of △ = h

Area of △ = $\frac{1}{2} \times b \times h = \frac{1}{2} \times b \times h$

New base = 2b

altitude = 2h

New Area = $\frac{1}{2} \times 2b \times 2h = 4 \times \frac{1}{2} bh$

So new Area is 4 times the original Area

Sol 12. Tiles required for Area 24m² = 1000

Tiles required for Area 1m² = $\frac{1000}{24}$

Tiles required for Area 96m² (12×8) = $\frac{1000}{24_1} \times \cancel{96}^{4}$

= 4000

So 4000 tiles are required for a hall.