Exercise 18C

Q1.

Answer :

(b) 144 cm^2

Area of the trapezium $= \left\{\frac{1}{2} \times (14+18) \times 9\right\}$ cm^2

$= \left(\frac{1}{2} \times 32 \times 9\right)$ cm^2

$= 144$ cm^2

Q2.

Answer :

(c) 8 cm

Let the distance between the parallel sides be x cm.

Then, area of the trapezium $= \left\{\frac{1}{2} \times (19+13) \times x\right\}$ cm^2

$= \left(\frac{1}{2} \times 32 \times x\right)$ cm^2

$= 16x$ cm^2

But it is given that the area of the trapezium is 128 cm^2.

$\therefore 16x = 128$

$\Rightarrow x = \frac{128}{16}$

$\Rightarrow x = 8$ cm

Q3.

Answer :

(a) 45 cm

Let the length of the parallel sides be 3x cm and 4x cm, respectively.

Then, area of the trapezium $= \left\{\frac{1}{2} \times (3x+4x) \times 12\right\}$ cm^2

$= \left(\frac{1}{2} \times 7x \times 12\right) cm^2$

$= 42\,x$ cm^2

But it is given that the area of the trapezium *is* 630 cm^2.

$\therefore 42x = 630$

$\Rightarrow x = \frac{630}{42}$

$\Rightarrow x = 15$ *cm*

Length of the parallel sides $= (3 \times 15)$cm $= 45$ cm

(4×15) cm $= 60$ cm

Hence, the shorter of the parallel sides is 45 cm.

Q4.

Answer :

(b) 23 cm

Let the length of the parallel sides be x cm and $(x+6)$ cm, respectively.

Then, area of the trapezium $= \left\{\frac{1}{2} \times (x+x+6) \times 9\right\}$ cm^2

$= \left\{\frac{1}{2} \times (2x+6) \times 9\right\}$ cm^2

$= 4.5(2x+6)$ cm^2

$= (9x+27)$ cm^2

But it is given that the area of the trapezium *is* 180 cm^2.

$\therefore 9x+27 = 180$

$\Rightarrow 9x = (180-27)$

$\Rightarrow 9x = 153$

$\Rightarrow x = \frac{153}{9}$

$\Rightarrow x = 17$

Therefore, the length of the parallel sides are 17 cm and $(17+6)$ cm, which is equal to 23 cm.

Hence, the length of the longer parallel side is 23 cm.

Q5.

Answer :

(c) 80 cm^2

From the given trapezium, we find :

$DC = AL = 7\ cm$ [since $DA \perp AB$ *and* $CL \perp AB$]

From the right $\triangle$ CBL, we have :

$CL^2 = CB^2 - LB^2$

$\Rightarrow CL^2 = (10)^2 - (6)^2$

$\Rightarrow CL^2 = 100 - 36$

$\Rightarrow CL^2 = 64$

$\Rightarrow CL = \sqrt{64}$

$\Rightarrow CL = 8\ cm$

Area of the trapezium $= \left\{\frac{1}{2} \times (7+13) \times 8\right\}$ cm^2

$= \left(\frac{1}{2} \times 20 \times 8\right)$ cm^2

$= 80$ cm^2

********** END **********