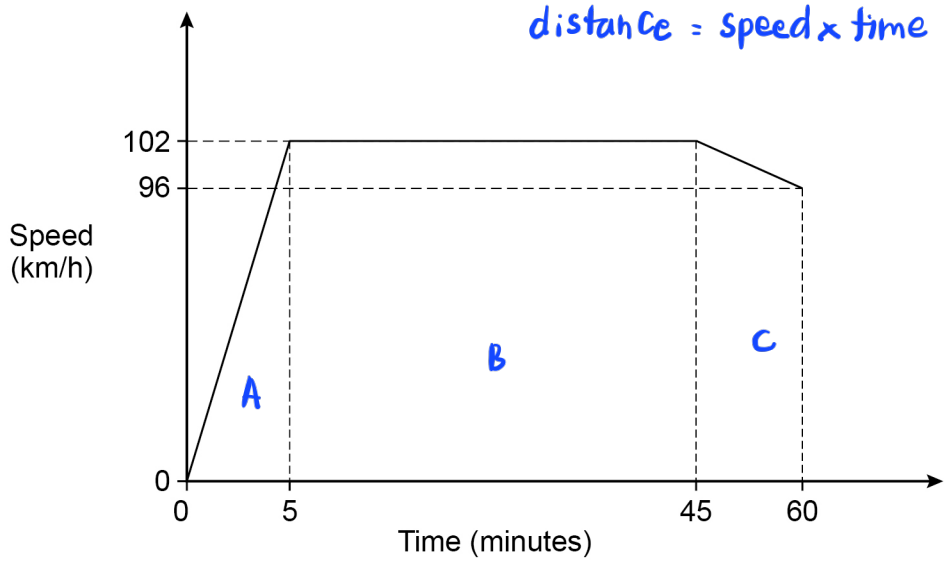
1 Here is a sketch of a speed-time graph for the first part of a journey.

distance = speed x time



The total distance for the journey is 130 kilometres.

How far is left to travel?

[4 marks]

Area A : $\frac{1}{2} \times \frac{5}{60} \times 102 = 4.25$ (1)

Area B : $\left(\frac{45-5}{60}\right) \times 102 = 68$

Area C : $\frac{1}{2} \times \left(\frac{60-45}{60}\right) \times (102+96) = 24.75$

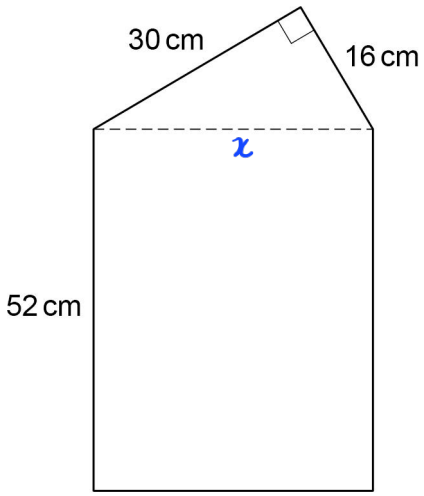
Total area : $4.25 + 68 + 24.75 = 97$ (1)

$130 - 97 = 33$ (1)

(1)

Answer 33 km

2 A shape is made by joining a right-angled triangle to a rectangle.



Not drawn accurately

Work out the area of the shape.

[5 marks]

$x^2 = 30^2 + 16^2$

$= 900 + 256$ (1)

$= 1156$

$x = \sqrt{1156} = 34$ (1)

Area of triangle : $\frac{1}{2} \times 30 \times 16 = 240$ (1)

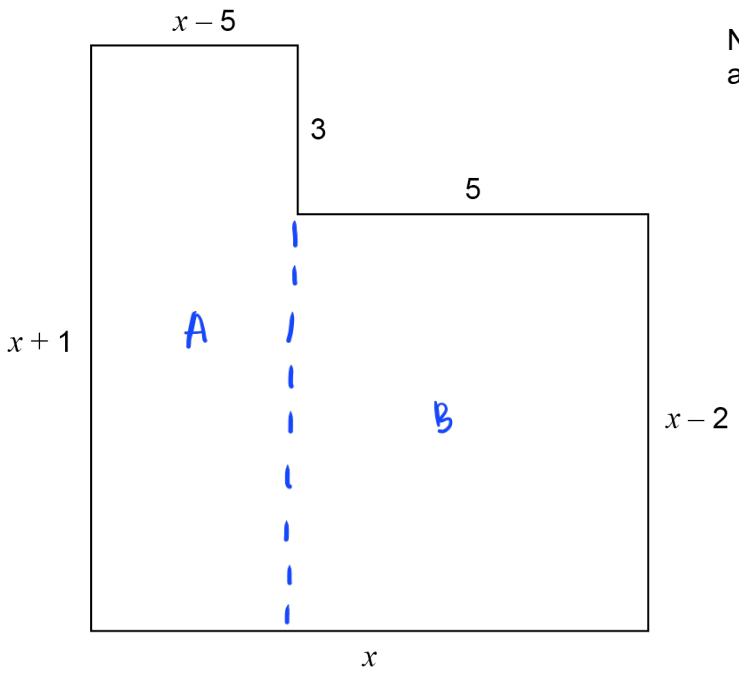
Area of rectangle : $52 \times 34 = 1768$ (1)

Total : $240 + 1768 = 2008$ (1)

Answer 2008 cm^2

3 Here is the plan of the floor of an L-shaped room.

All lengths are in metres.



Not drawn accurately

3 (a) The area of the floor is $75\,m^2$

Show that $x^2 + x - 90 = 0$

[3 marks]

Area of A : $(x-5)(x+1) = x^2 - 4x - 5$ (1)

Area of B : $5(x-2) = 5x - 10$

$x^2 - 4x - 5 + 5x - 10 = 75$ (1)

$x^2 + x - 15 - 75 = 0$ (1)

$x^2 + x - 90 = 0$

3 (b) By factorising $x^2 + x - 90$ work out the value of x.

You **must** show your working

[2 marks]

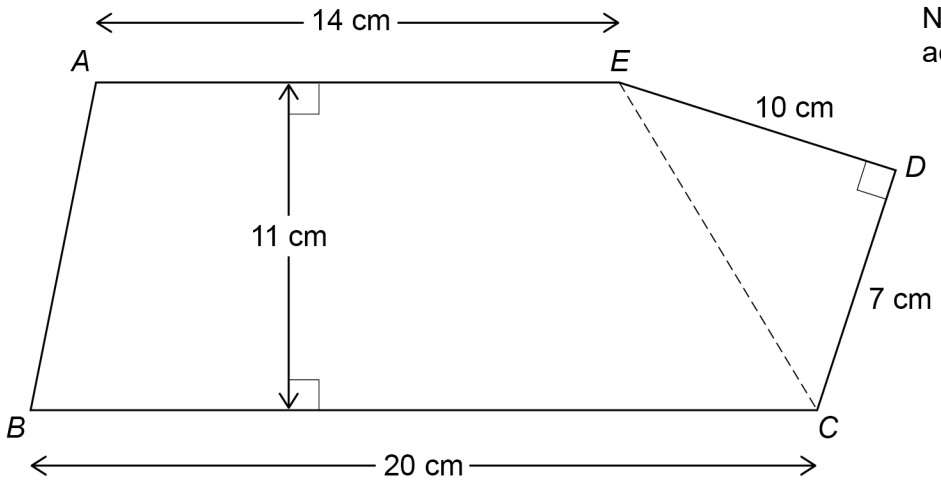
$(x-9)(x+10)$ (1)

$x = 9$ or $x = -10$

$x = 9$ only since length can't be negative

$x =$ 9 (1)

4 *ABCDE* is a pentagon.



Not drawn accurately

Work out the area of the pentagon.

[3 marks]

Area of trapezium : $\frac{1}{2} \times (14+20) \times 11 = 187\ cm^2$ (1)

Area of triangle : $\frac{1}{2} \times 10 \times 7 = 35\ cm^2$ (1)

Total area : $187 + 35 = 222\ cm^2$ (1)

Answer 222 cm^2