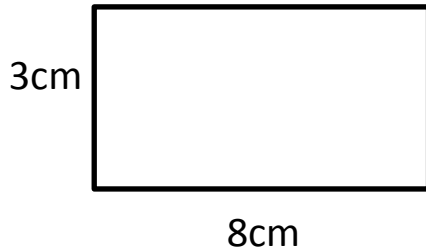


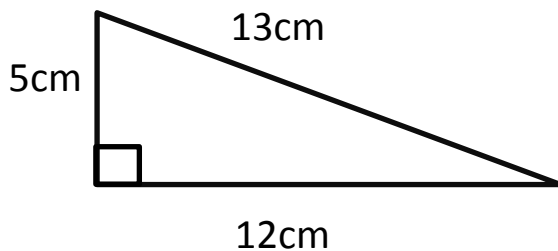
Level 3: Area, Perimeter and Volume

1) Calculate the area of a square or rectangle

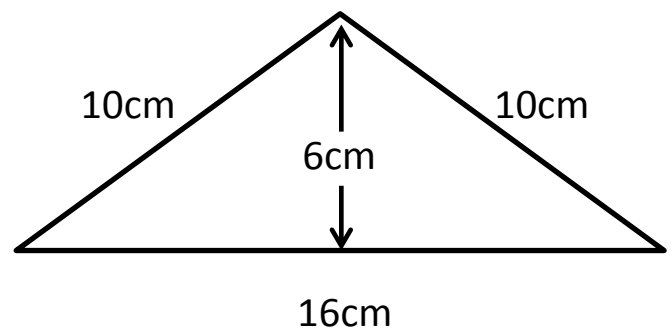


$$\begin{aligned} A &= \text{length} \times \text{breadth} \\ &= 8 \times 3 \\ &= 24\text{cm}^2 \end{aligned}$$

2) Calculate the area of a triangle

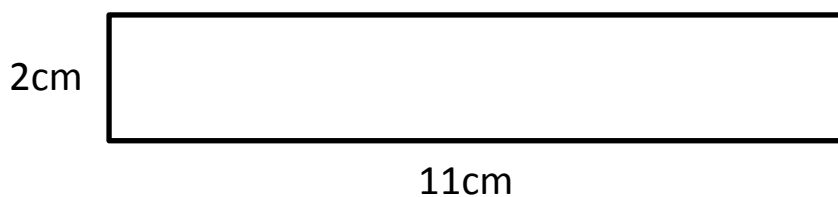


$$\begin{aligned} \text{Area} &= \frac{1}{2} \text{ base} \times \text{height} \\ &= \frac{1}{2} 12 \times 5 \\ &= \frac{1}{2} \text{ of } 60 \\ &= 30\text{cm}^2 \end{aligned}$$



$$\begin{aligned} \text{Area} &= \frac{1}{2} \text{ base} \times \text{height} \\ &= \frac{1}{2} 16 \times 6 \\ &= \frac{1}{2} \text{ of } 96 \\ &= 48\text{cm}^2 \end{aligned}$$

3) Calculate the perimeter of a straight sided shape



$$\text{Perimeter of rectangle} = 2 + 11 + 2 + 11 = 26\text{cm}$$

4) Convert between metric units

Remember:-

$$10\text{mm} = 1\text{cm}$$

$$100\text{cm} = 1\text{m}$$

$$1000\text{m} = 1\text{km}$$

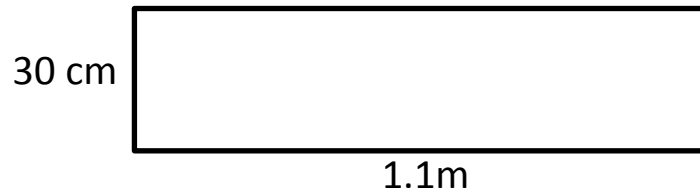
Be able to work out:-

$$37\text{mm} = 3.7\text{cm}$$

$$1.2\text{m} = 120\text{cm}$$

$$400\text{m} = 0.4\text{km etc.}$$

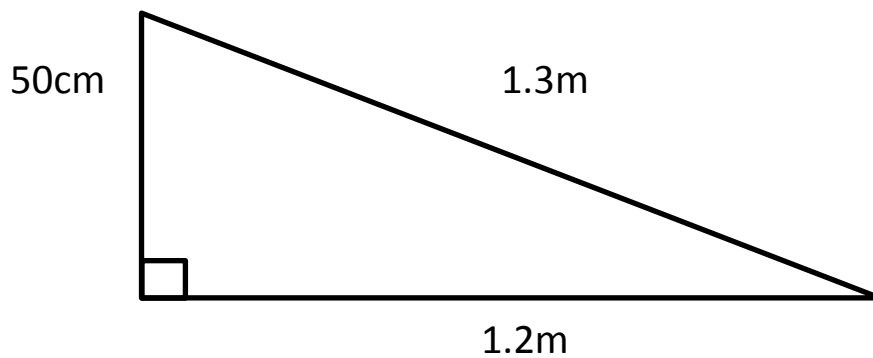
5) Calculate area of a shape given lengths in different units



$$1.1\text{m} = 110\text{ cm}$$

$$\begin{aligned}\text{Area} &= l \times b \\ &= 110 \times 30 \\ &= 3300\text{cm}^2\end{aligned}$$

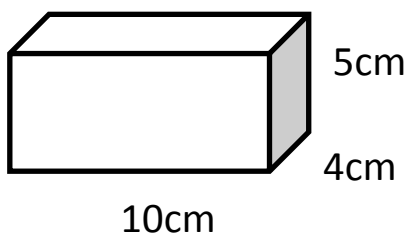
6) Calculate the perimeter of a shape given lengths in different units



$$50\text{cm} = 0.5\text{m}$$

$$\text{Perimeter} = 1.3 + 1.2 + 0.5 = 3.0\text{m}$$

7) Calculate the volume of a cuboid



$$\begin{aligned}V &= \text{length} \times \text{breadth} \times \text{height} \\ &= 10 \times 4 \times 5 \\ &= 200\text{cm}^3\end{aligned}$$

8) Success Criteria for area and volume calculations

- Identify relevant information in the question
- Decide which formula is needed to solve this problem
- Write out the formula then the calculation to be carried out
- Calculate the answer and write it down
- Remember to write down the correct units

9) Solve problems by finding area, volume or perimeter

a) Charlie has £500 to spend on a new carpet for his lounge. His lounge 6m long and 4m wide. Charlie has seen a carpet he likes but it costs £24.99 per m^2 . Can he afford this carpet?

b) A farmer has two fields which need the fences replaced. The Long Field is a rectangle 385m long and 90m wide. The Square Field is a square side 270m. If the farmer has 1km of fencing available, which field's fence should he replace?

c) A swimming pool is a cuboid 10m long, 5m wide and 2m deep. It has been emptied for cleaning. If it takes 50 minutes to add 1m^3 of water to the pool, can the pool be re-filled in 3 days?

**REMEMBER TO SHOW ALL YOUR WORKING
AND EXPLAIN YOUR ANSWER FULLY!**