S1 Topic 6: Area, Perimeter and Volume

1) Calculate the area of a square or rectangle
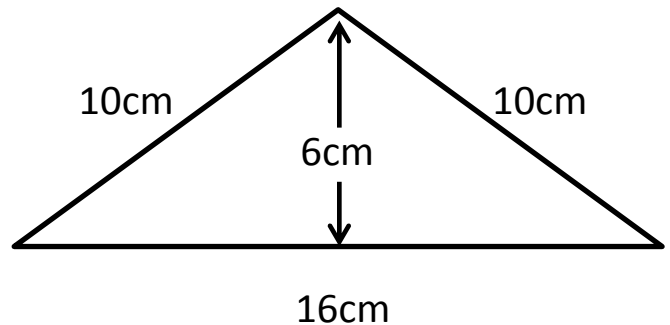
3cm

8cm
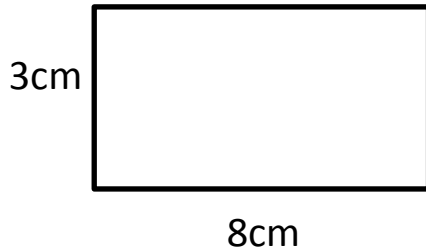
A = length x breadth
= 8 x 3
= 24cm^2

2) Calculate the area of a triangle
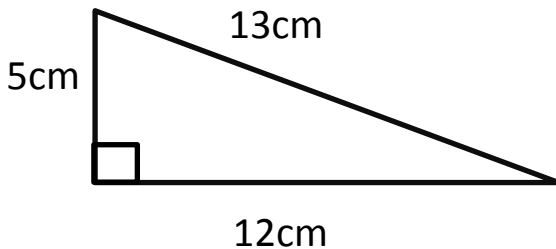
13cm

5cm

12cm

Area = ½ base x height
= ½ 12 x 5
= ½ of 60
= 30cm^2

10cm   10cm

6cm

16cm

Area = ½ base x height
= ½ 16 x 6
= ½ of 96
= 48cm^2

3) Calculate the perimeter of a straight sided shape

2cm

11cm
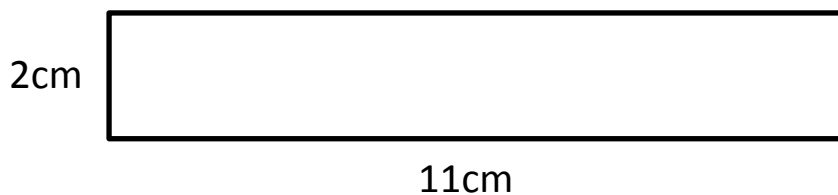
Perimeter of rectangle = 2 + 11 + 2 + 11 = 26cm

4) Convert between metric units

Remember :-
10mm = 1cm
100cm = 1m
1000m = 1km

Be able to work out :-
37mm = 3.7cm
1.2m = 120 cm
400m = 0.4km etc.

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

30 cm

1.1m

1.1m = 110 cm

Area = l x b
= 110 x 30
= 3300cm^2
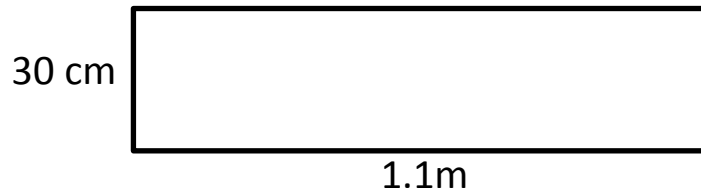
6) Calculate the perimeter of a shape given lengths in different units

50cm

1.3m

1.2m
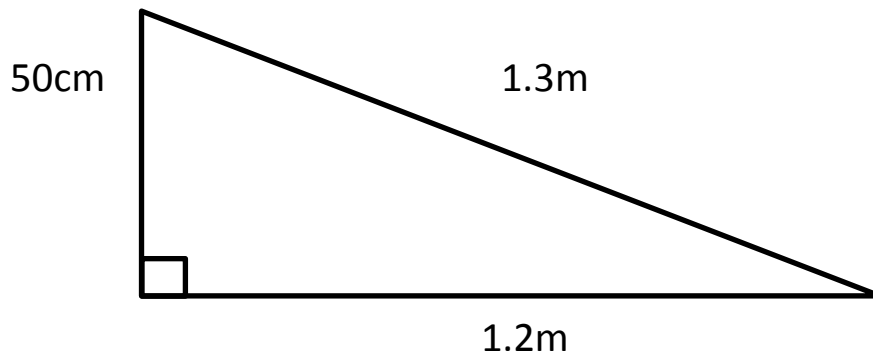
50cm = 0.5m
Perimeter = 1.3 + 1.2 + 0.5 = 3.0m

7) Calculate the volume of a cuboid

5cm

4cm

10cm

V = length x breadth x height
= 10 x 4 x 5
= 200cm^3
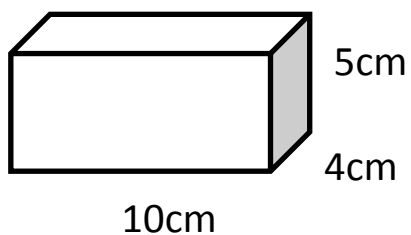
8) Success Criteria for area and volume calculations

- 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!**