Laying a patio

When I have to lay a patio I work from a scale plan.

Remember

Understanding scales

A scale of 1 : 75 means that 1 mm on the scale diagram represents 75 mm on the ground.

Scale measurement = 32 mm
Actual length is 32 × 75 = 2400 mm = 2.4 m

Scale measurement = 46 mm
Actual length = 46 × 75 = 3450 mm = 3.45 m

Activity 3

This plan of a patio has a scale of 1 : 200.

Remember

Area of a rectangle
= length × width

Check that the patio measures 32 mm × 46 mm on the scale plan.

1 Work out the actual dimensions of the patio.

Actual length = 46 × 200 = ☐ mm = ☐ m

Actual width = 32 × 200 = ☐ mm = ☐ m

Area = length × width = ... m^2

Scale plan of patio

2 The scale of this plan is 1 : 50. Measure the scale plan of the patio and work out the actual dimensions.

a The scale length = ☐ mm

b The scale width = ☐ mm

c The actual length = ... mm = ☐ m

d The actual width = ... mm = ☐ m

e The area = ... m^2

Activity 4

All measurements have to be in the same units so I'm going to work in millimetres.
2.4 m = 2400 mm
3.45 m = 3450 mm

John's mate, Tom, has to work out how many 450 mm × 450 mm slabs he needs for a patio measuring 2.4 m × 3.45 m.

2400 mm ÷ 450 mm = 5.33333333 slabs

3450 mm ÷ 450 mm = 7.66666666 slabs

So to build the patio he will need 6 × 8 slabs = 48 slabs (otherwise there will be gaps down two sides)

1 How many slabs will he need for a 9.2 m × 6.4 m patio?

9.2 m = ... mm

6.4 m = ... mm

9200 mm ÷ 450 mm = ... slabs

..... ÷ 450 mm = ... slabs

Draw sketches to help you

The total number of slabs = ☐ × ☐ = ☐

2 How many slabs will he need for a 3.6 m × 2.8 m patio?

.....

..... slabs

The total number of slabs = ☐

Activity 5

I lay slabs on a bed of sand 50 mm deep. This is to make sure the slabs stay level. I have to work out the volume of sand that I need.

The length and width are in metres so I am going to work in metres
50 mm = 0.05 m

The volume of sand 50 mm deep needed for a patio 2.4 m by 1.2 m = 2.4 m × 1.2 m × 0.05 m = 0.144 m^3

Remember

Calculating volume

Volume = length × width × height = l × w × h

Volume is given in cubed units e.g. m^3, mm^3

1 Work out the volume of sand, laid 50 mm deep, needed for these patios

a A patio 9.2 m by 6.4 m. Volume = ... m^3

b A patio 3.6 m by 2.8 m. Volume = ... m^3