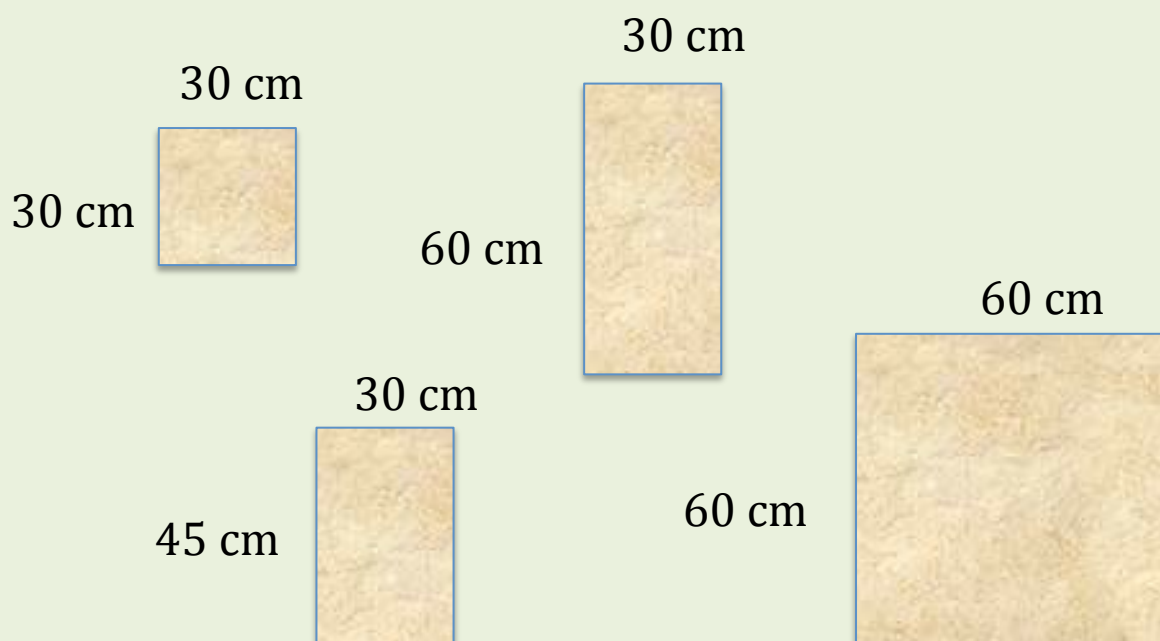# The Patio

**Task A: Design**

Alan is designing a patio.

The area to be designed is a rectangle measuring 360 cm by 540 cm.

First he must choose between:
- A rectangular design that fills the space exactly (as in slide 3);
- An irregular design (as in slide 4) with gravel or grass around the edge.

Alan wants to use a random selection of slabs from the set below.

30 cm

30 cm

30 cm

30 cm

60 cm

60 cm

30 cm

60 cm

45 cm

Design a patio using the slabs shown.
Create a scale diagram of your design.

**Remember**

You can choose between a rectangular or an irregular design.

**Task B: Construction cost**

The cost of materials needed is shown below. Work out the construction cost of your design.

Produced an itemised list that shows the amount to be spent on each item.

### Costs

| | |
|---|---|
| Paving slab (30 cm by 30 cm): | £6.50 |
| Paving slab (30 cm by 45 cm): | £8.50 |
| Paving slab (30 cm by 60 cm): | £10.50 |
| Paving slab (60 cm by 60 cm): | £15 |
| Hardcore (1 cubic metre): | £55 |
| Sand (one 25 kg bag*): | £3.50 |
| Cement (one 25 kg bag*): | £6 |
| Gravel (1 cubic metre): | £75 |

*Assume that one 25 kg bag of sand (or cement) contains about 25 litres of sand (or cement)*

**Remember**
- Hardcore fills the whole rectangular area to a depth of 10 cm
- Bedding mortar is needed under the paving slabs to a depth of 2.5 cm
- Mortar uses sand and cement in the ratio 5:1
- Gravel (if used) is placed directly on top of the hardcore to a depth of 5 cm
- 1 litre is equivalent to 1000 cm$^3$