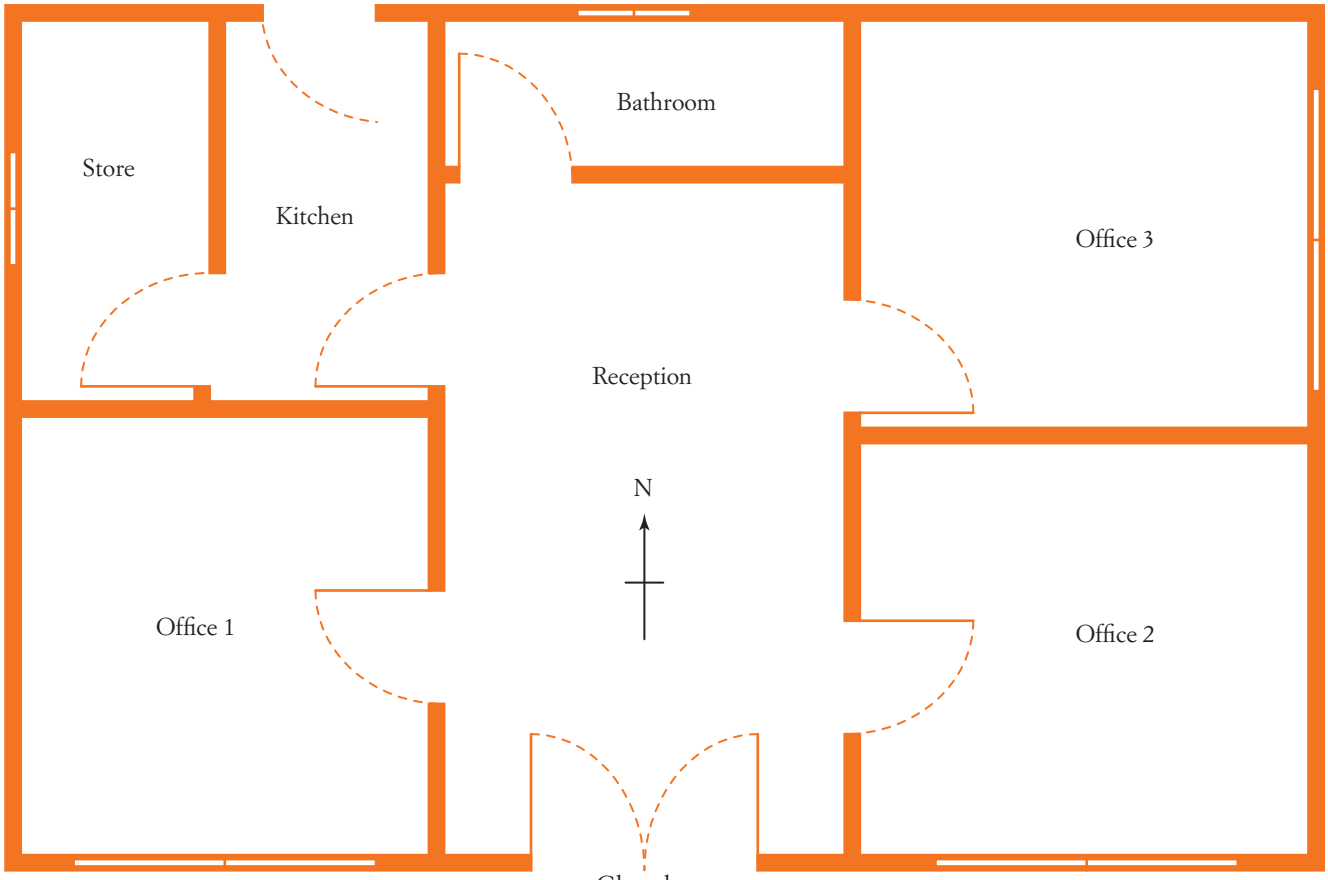
WORKSHEET

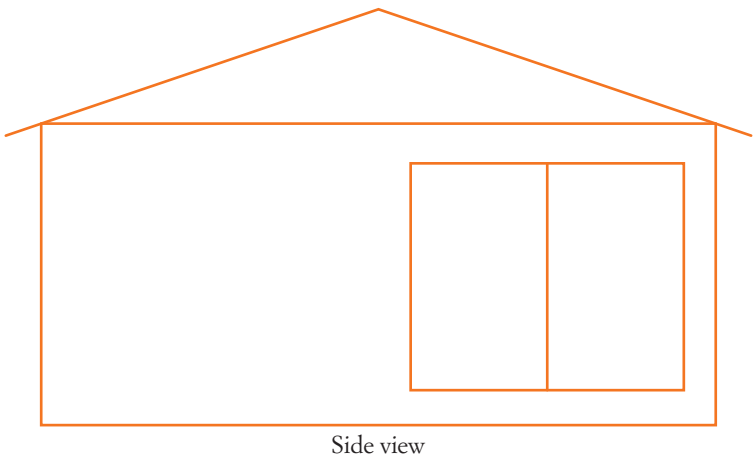
# Interpreting an office plan

The two scale diagrams below (1 : 50) show the floor plan and a side view of a real estate office building. By measurement and calculation, answer the questions on the following page.




South side

1 : 50



Side view

*Hint*: For convenience, express all measurements in metres. Where necessary, give answers correct to two decimal places.

**1** How many doors are there on the office plan?

**2** How many doors open in to the right?

**3** How wide is each door?

**4** For this office building, calculate its:

**a** length

**b** width

**c** perimeter

**d** area.

**5** The concrete slab for the floor of this building needs to be 125 mm thick.

**a** Find the volume of concrete needed to build the floor.

**b** If concrete costs $75 per cubic metre, calculate the cost of the concrete slab.

**6** Which room(s) has:

**a** double doors?

**b** no windows?

**c** the back door?

**7** **a** How long is the window in the bathroom?

**b** Which direction does this window face (N, S, E, or W)?

**8** How thick is each wall? Give your answer in millimetres.

**9** Calculate the inside floor area of:

**a** office 1

**b** the bathroom.

**10** Calculate the inside dimensions of:

**a** the kitchen

**b** the store.

**11** Calculate the cost of tiling the bathroom if tiles cost $95 per square metre laid.

**12** Which room has:

**a** the largest area?

**b** the smallest area?

**c** the longest perimeter?

**d** the shortest perimeter?

**13** Which room gets the sun in the morning?

**14** What is the length of the biggest bookshelf that could be placed behind the door in office 2?

**15** If carpet costs $145 per square metre and labour costs $32 per square metre, calculate the total cost of having the reception area carpeted.

**16** From which direction is the side view of the office drawn (N, S, E or W)?

**17** Draw the front view of the office.

**18** If all rooms have the same height, what is this height?

**19** If the windows in all offices have the same height:

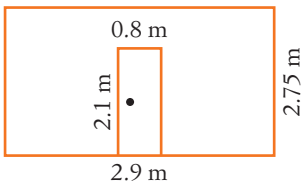
**a** how high are they?

**b** how high above the ground are their bottom edges?

**20** The two front windows will be used to display houses for sale and rent. What size is this display area?

**21** The walls of office 1 are to be painted.

**a** One wall is illustrated here. Make rough sketches of the other walls, showing their dimensions.




**b** Calculate the areas of the door and window.

**c** Calculate the area to be painted.

**d** If 1 L of paint covers 16 $m^2$, how many litres will be needed to give every wall two coats of paint?

**22** The walls of office 2 are to be wallpapered.

**a** Calculate the inside perimeter of office 2.

**b** An alternative way of finding the area to be wallpapered is to multiply the perimeter of the room by the height, then subtract the areas of the door and window. If the door and window are the same size as those in office 1, find the area to be wallpapered.

**c** One roll of wallpaper is 60 cm wide and holds 4 m of paper. How many rolls will be needed?

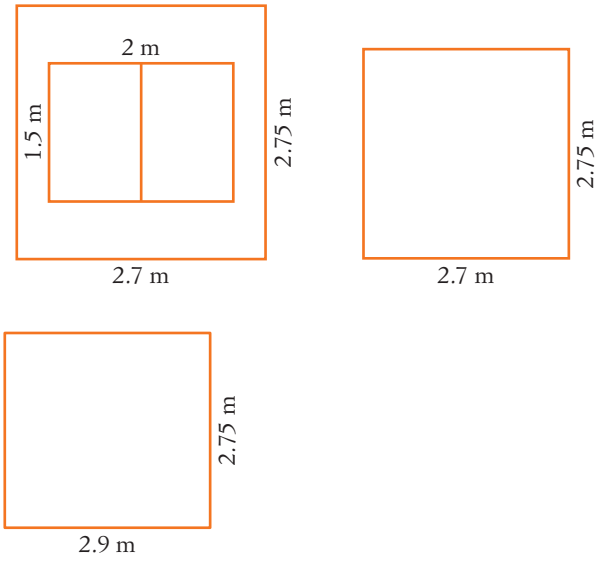
**23** To make curtains for the window in office 3,we need material $2\frac{1}{2}$ times the length of the window.

**a** What length of material is needed?

**b** Find the cost of the curtains if material costs $29.50 per metre.

## Answers

**1** 9 doors
**2** 3 doors
**3** 0.8 m (80 cm)
**4** **a** 8.75 m
**b** 5.75 m
**c** 29 m
**d** 50.31 $m^2$
**5** **a** 6.29 $m^3$
**b** $471.75
**6** **a** reception
**b** kitchen; reception
**c** kitchen
**7** **a** 0.75 m
**b** N
**8** 100 mm
**9** **a** 7.83 $m^2$
**b** 2.65 $m^2$
**10** **a** 1.35 m × 2.5 m
**b** 1.25 m × 2.5 m
**11** $251.75
**12** **a** reception
**b** bathroom
**c** reception
**d** bathroom
**13** Office 3
**14** 1 m
**15** $2087.28
**16** E
**17** Teacher to check
**18** 2.75 m
**19** **a** 1.5 m
**b** 0.5 m
**20** 6$m^2$
**21** **a**




**b** door 1.68 $m^2$; window 3 $m^2$
**c** 26.12 $m^2$
**d** 3.27 L
**22** **a** 11.4 m
**b** 26.67 $m^2$
**c** 12
**23** **a** 5 m
**b** $147.50