

REVISION: MAPS, PLANS & MODELS

25 SEPTEMBER 2014



Lesson Description

In this lesson we revise:

- Working with Scales on Plans
- Models

Working with Scales on Plans



Improve your Skills

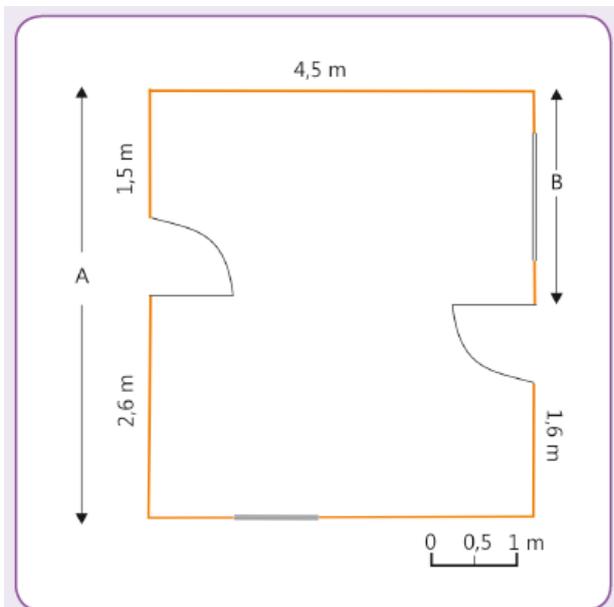
Question 1

On a plan, the length of a wall measures 5,4 cm. Calculate the actual length of the wall if the scale of the plan is:

- a.) 1 : 250
- b.) 1 : 500
- c.) 1 : 1 500

Question 2

This is the plan of a kitchen:



represents a door



represents a window

All the doors are 90 cm wide.

- a.) Calculate the length of A.
- b.) Calculate the length of B.

A carpenter wants to buy skirting to put around the perimeter of the kitchen. He has to deduct the width of the door openings in order to do his calculations.

- c.) Calculate the length of wood he needs for the skirting. Show your calculations.
- d.) The carpenter adds 12% to his measurement. What length of wood does he plan to buy?
- e.) The wood comes in 4 m lengths. How many lengths must he buy?
- f.) The wood costs R25,75 per 4 m length. What does he pay for the wood?

Models

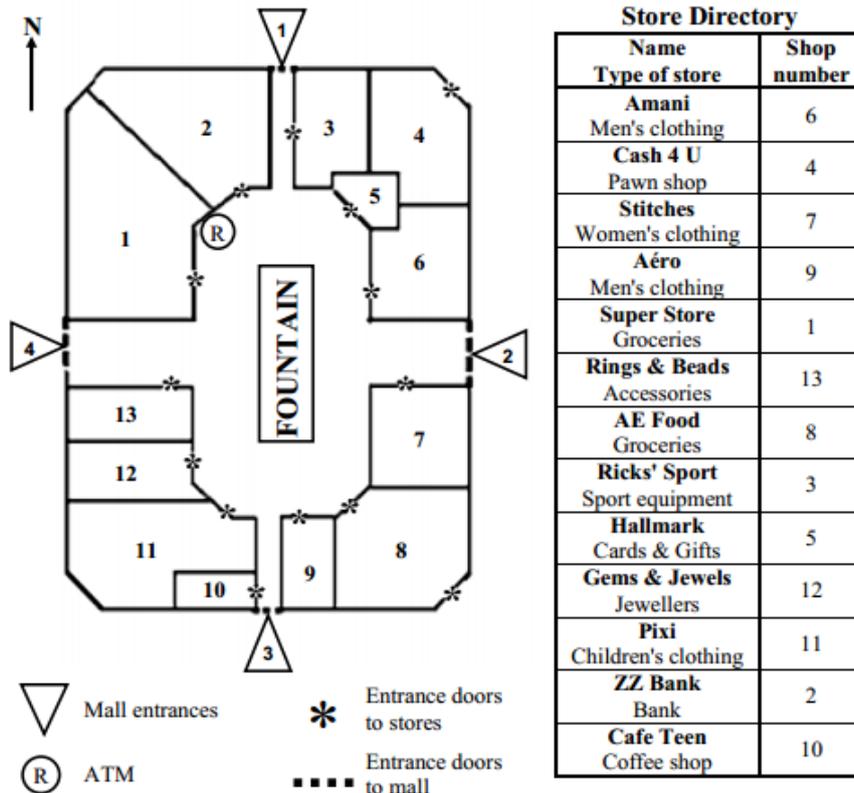


Improve your Skills

Question 1

(Adapted from DBE Feb 2014 Paper 2 Question 3)

A new shopping mall has opened in Roseville. The layout plan as well as the store directory of Roseville Shopping Mall is shown in the diagram below.

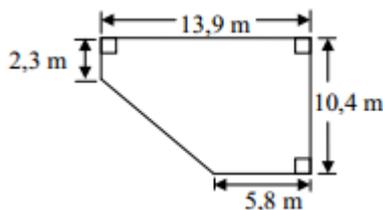


Peggy want to buy gifts at Hallmark.

1.1 Describe the route she has to take from Cafe Teen to walk to Hallmark.

The Hallmark store is in the shape of a pentagon. The floor plan of the store has the following dimensions as indicated in the diagram below:

Floor plan of the store



1.2 Calculate the total floor area of the store.
You may use the following formulae:

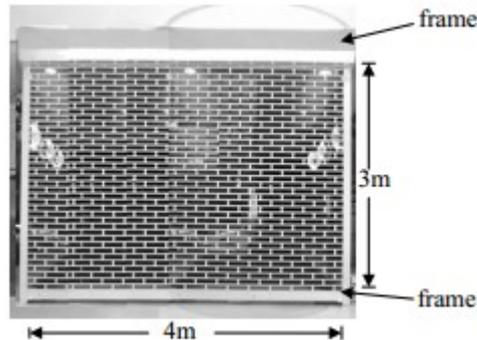
Area of a rectangle = length × breadth

Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

Area of a trapezium = $\frac{1}{2} \times (\text{sum of parallel sides}) \times \text{height}$

Hallmark's entrance has a security curtain gate, which is shown in the photograph alongside.

The security curtain gate, excluding the frame, has a mass of $4,7 \text{ kg/m}^2$. The material that is used to make the security curtain gate, excluding the frame, costs R12,50 per kilogram.



If the dimensions of the curtain gate, excluding the frame, are $3 \text{ m} \times 4 \text{ m}$, determine whether the cost of the material to make the security curtain gate exceeds R800.

Question 2

Gail decides to make pencil holders as gifts. She offers a service of personalising these holders too.



Mr Khan decides that these pencil holders will be ideal end of year gifts for the teachers at his school and so orders 46 pencil holders.

A cylindrical pencil holder has a diameter of 10 cm and a height of 15 cm.

2.1 How should Gail pack these pencil holders?

2.2 Calculate the volume of polystyrene she needs to fill the gaps between the pencil holders

Question 3

While flying back to South Africa from the USA, Peter is very uncomfortable in his small seat and cannot sleep. So he takes some measurements of the airplane he is flying on and starts to do some thinking about the design of the seating arrangements. Here are the facts he finds:

- The interior cabin width is 5,86m
- The seats are only 375 mm wide.
- For safety measures the aisles needs to be a minimum width of 375 mm
- There are two aisles on Peter's flight

Peter notices that the plane is only 80% full.

3.1 Draw a sketch to show the maximum number of seat you could fit into one row

Peter would like to have a seat that is 46,2cm wide.

3.2 How many of these seats could fit in to one row?

3.3 Why doesn't the airline make bigger seats if the average occupancy is about 80%?