



MATHEMATICAL LITERACY

Grade 12

02 JULY 2014

MAPS

Checklist

Make sure you:

- Know how to:
 - **Use Scales:**
 - Use a given scale in conjunction with measurement on a plan/map to determine length/dimensions.
 - Determine the scale of a map or plan.
 - Use a given scale in conjunction with other content or skills to complete a project (e.g. use a given scale to determine the dimensions in which to draw a 2-dimensional plan of an object, and then draw the plan).
 - **Read Maps:**
 - Identify the labels/names of national roads (e.g. N3) that must be travelled on to travel between two locations.
 - Identify the names of the towns on the route between two locations.
 - Identify the scale of a map.
 - Identify the position of two locations on a map and use given distance values on the map to determine the travelling distance between the two locations.
 - Interpret a given set of directions and describe what location the directions lead to.
 - Provide a set of directions to travel between two locations in a town using street names.
 - Use a map in conjunction with a distance chart to determine the shortest route to travel between two locations.
 - Estimate travelling times between two or more locations based on estimated travelling speed and known or calculated distances.
 - **Read Plans:**
 - Use a given key to identify the number of windows/doors/rooms shown on a plan for a building.
 - Identify on which plan a particular structure is shown (e.g. the door is shown on the North elevation plan).
 - Measure dimensions on a plan and use a given scale to determine actual dimensions.
- Can explain.....
 - A proposed travel route in relation to distance, estimated travelling times, etc. and suggest and justify possible alternative routes.
 - Using maps in conjunction with other travel resources (e.g. exchange rate information; distance chart; bus timetable; etc.) and financial information (e.g. fare tables; petrol price; etc.) the cost of a trip.
 - Decisions made during a journey based on considerations of fatigue, petrol consumption travelling time, etc.
 - How to interpret plans to determine the dimensions of a room in order to make decisions, for example, establish the amount of carpet needed for the floor of the room.





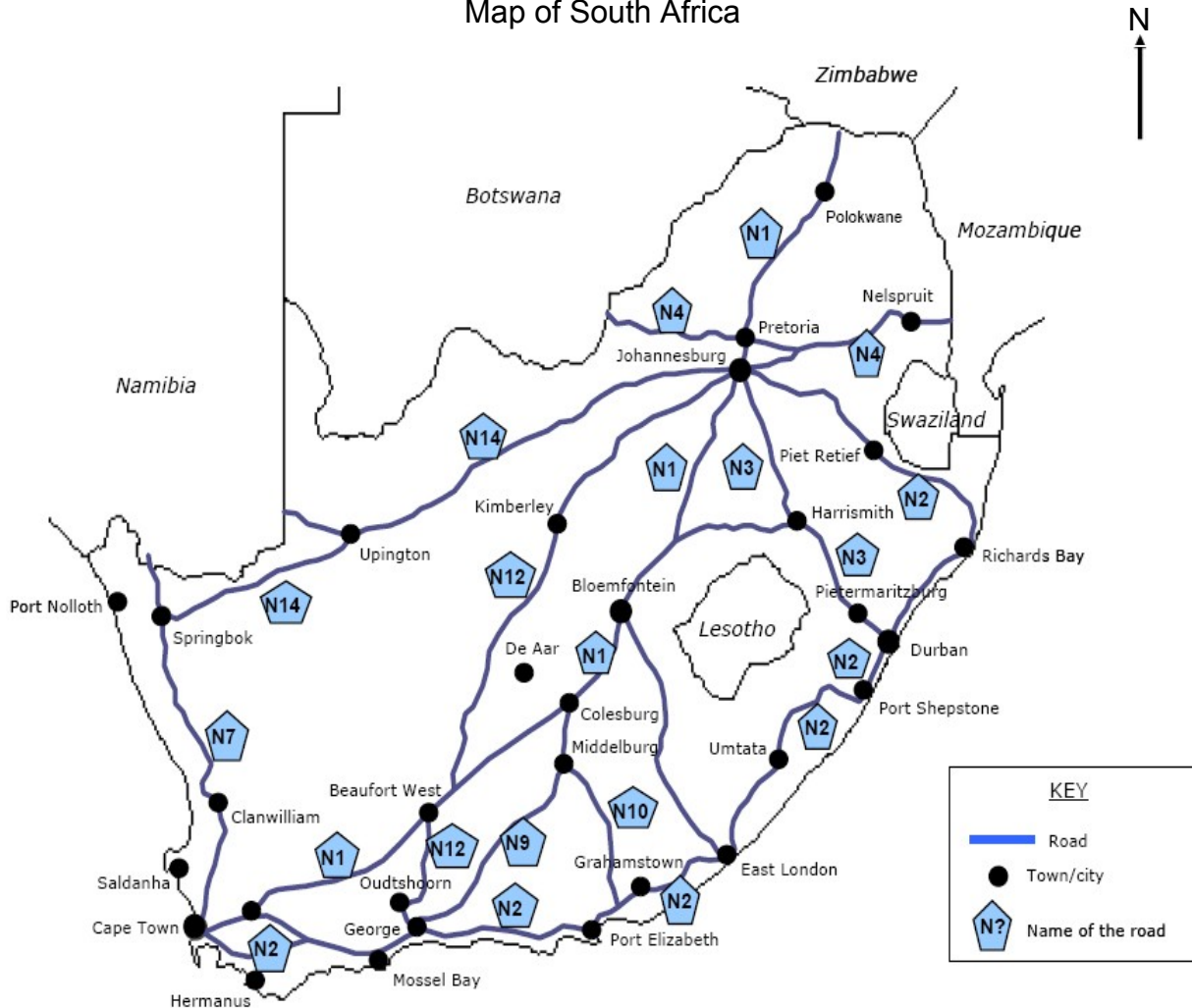
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Exam Questions

Question 1

Joshua is preparing for a road trip from Durban to Cape Town for his December holidays. To plan the route, he uses maps and distance guides. A map and two of the distance guides that he uses are given below.

Map of South Africa



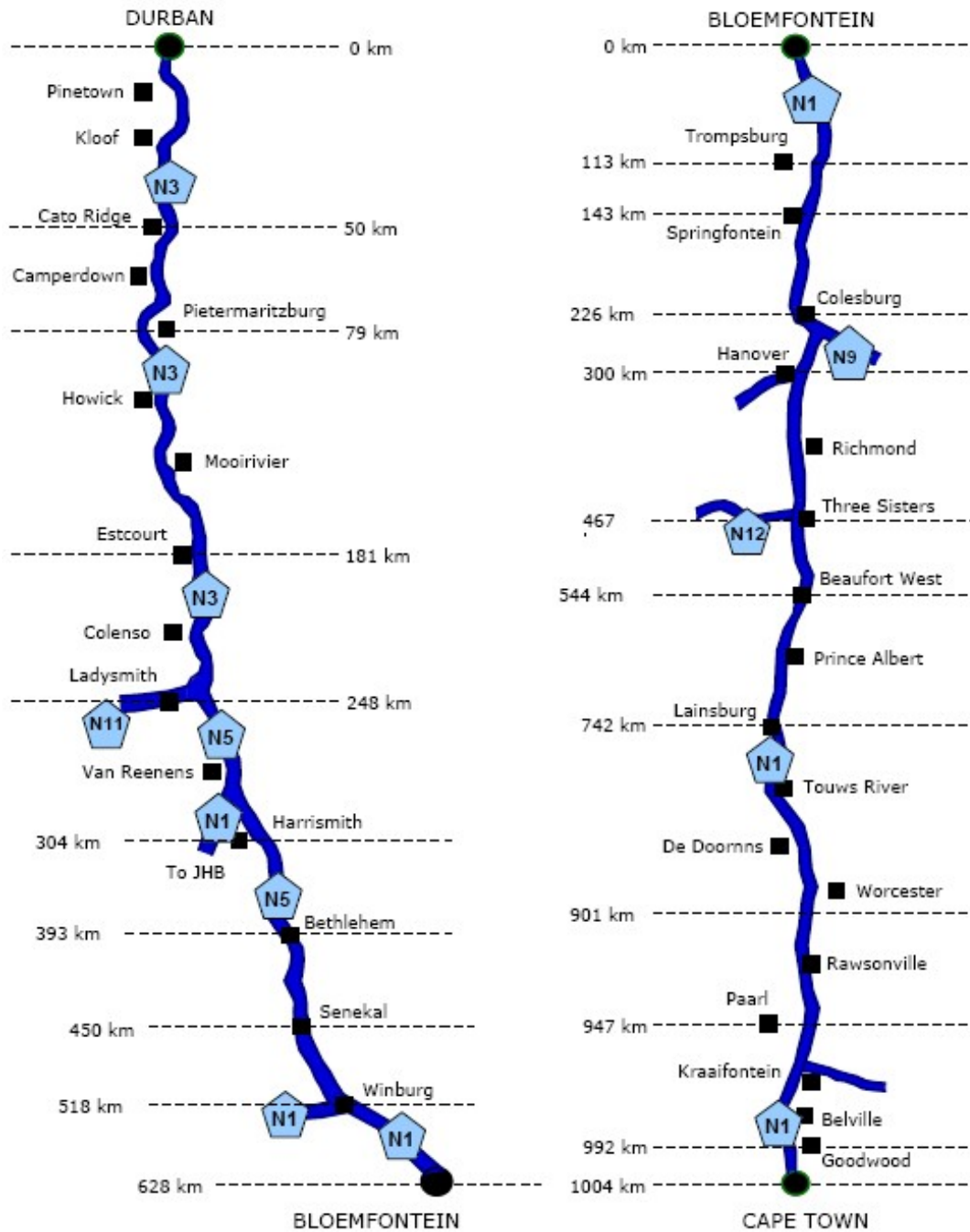
[Source: Adapted from: Map Studio, Engen Road Maps of Southern Africa (pages 84 & 87)]





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Distance Guides for Durban to Bloemfontein and Bloemfontein to Cape Town



Study the map and distance guides carefully and then answer the questions that follow.

- 1.1 What is the compass direction from Durban to Pietermaritzburg? (1)
- 1.2. What is the distance from Durban to Pietermaritzburg? (1)
- 1.3 Calculate the distance from Cape Town to Three Sisters. (2)
- 1.4 Calculate the distance from Senekal to Springfontein. (3)
- 1.5 What is the total distance from Durban to Cape Town via Bloemfontein? (1)





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Question 2

Your school is building a new classroom. The description of the classroom is that it has a door and 2 windows on one wall and on the opposite wall it has 3 windows.

The measurements of the classroom are as follows:

Walls

Width : 5 metres Height : 2,2 metres

Door

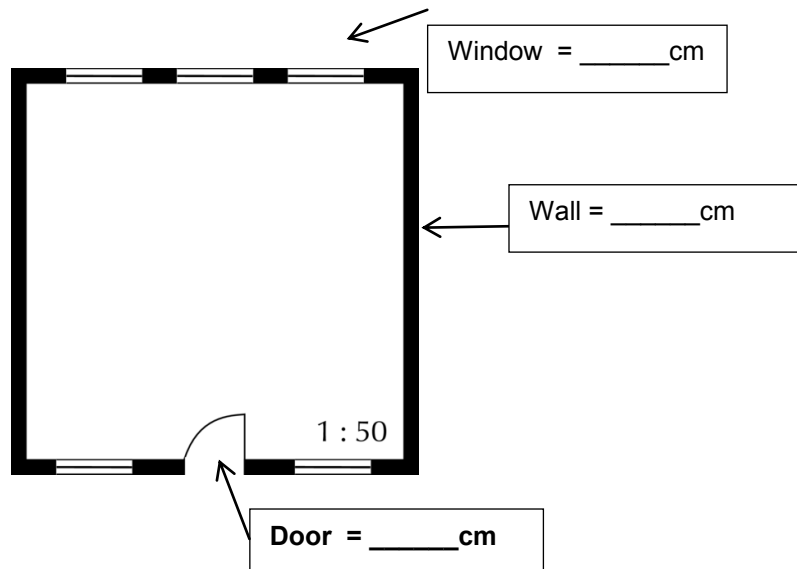
Width: 810 mm Height: 1,8m

Windows

Width: 1000 mm Height: 1m

- 2.1 A plan of the classroom using a scale of 1 : 50 is to be drawn.
This plan has been drawn (not to scale) using the appropriate symbols.

On the diagram label how long in centimetres the walls; windows and the door should be if the diagram was to be drawn accurately using the 1:50 scale. (6)



- 2.2 If the school wants to make blinds out of fabric for the classroom windows and the blinds are the same size as the windows calculate the total length of material (in metres) that needs to be bought. The material is 1m wide. (2)
- 2.3 If the material for the blinds costs R 60 per metre, calculate the total cost of fabric for the blinds. (2)
- 2.4 The school needs to tile the floor of the classroom. Calculate the total area that must be tiled. (2)
- 2.5 If the tiles come in boxes that cover 4 m², how many boxes must the school buy? Explain your answer. (3)
- 2.6 If the tiles cost R 150 per box, calculate how much the tiles will cost. (2)

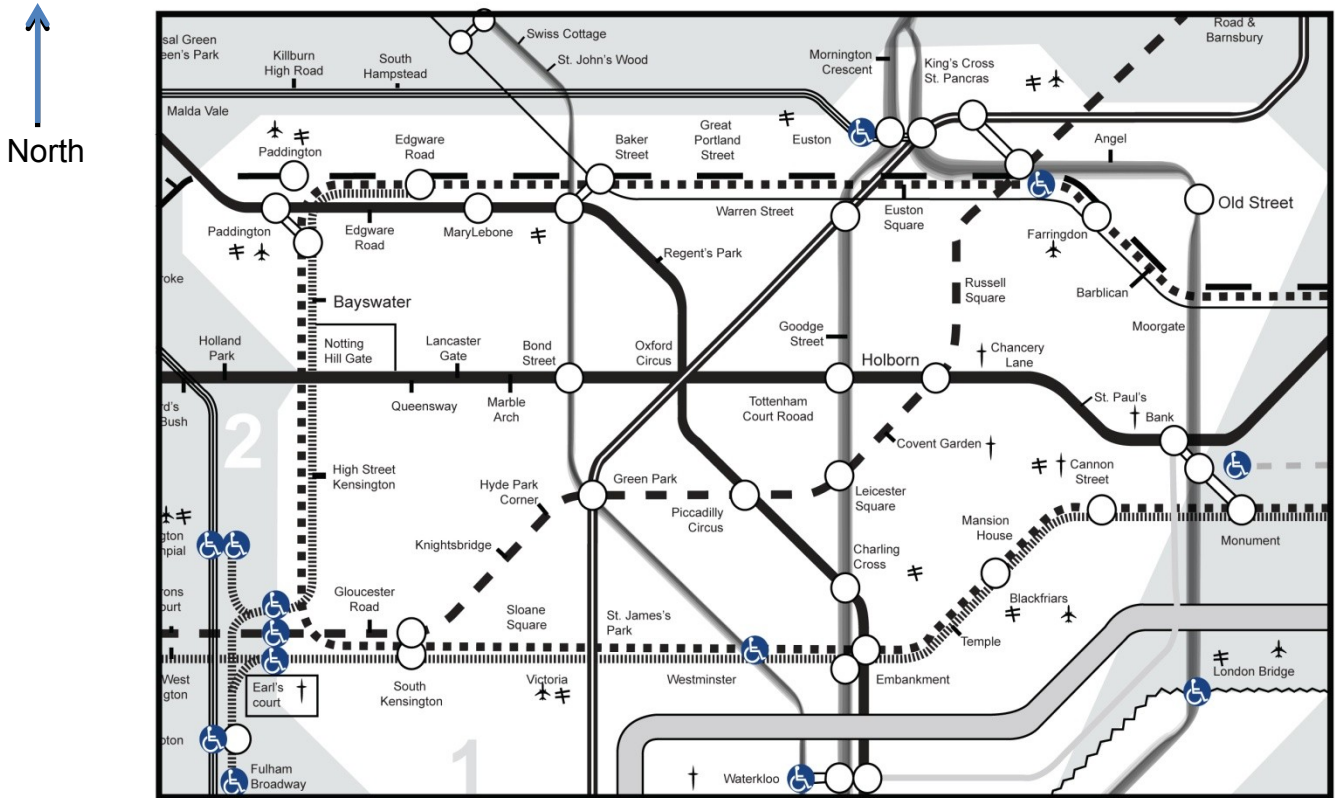




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Question 3

This is a map showing a section of the London Underground (train) system. Refer to this when answering the questions below.



KEY			
	Route 1		Route 8
	Route 2		Route 9
	Route 3		Route 10
	Route 4		Route 11
	Route 5		Route 12
	Route 6		Route 13
	Route 7		Route 14
			Route 15

- 3.1 If you got onto the tube at Oxford Circus (Route 1) what direction would you travel to get to:
- 3.1.1 Notting Hill Gate (1)
 - 3.1.2 Gloucester Road (1)
 - 3.1.3 Warren Street? (1)
- 3.2 If you are currently at South Kensington describe how you would get to Bond Street with the fewest stops, use the name of the line (use the key to help you) to describe which one you would be riding on and use compass directions. (3)





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- 3.3 The open circles in the map indicate where you can change lines to get onto another line. If you travelled on the red line from Marylebone to Charing Cross how many time could you change lines (not including Marylebone station)? (1)
- 3.4 The scale of a map of London is 1:50 000.
- 3.4.1 It is given that the distance between Holland Park and Tottenham Court road is 53mm. Use the scale to calculate how far is this in real life? Give your answer in millimetres. (1)
- 3.4.2 Using this answer what would this distance be in kilometres? (3)
- 3.5 If the distance from Green Park to Leicester Square is 3,12km in real life. And the distance on the map was 10,4cm. What would the scale of the map be? (3)
- 3.6 The speed of a train is calculated by :
- $$\text{Speed} = \text{distance} \div \text{time}$$

If a train covers a distance of 120 000m in 1½ hours, without stopping, what speed is it travelling at in km/h? (3)

Test Yourself

Refer to map of Rosebank on the next page when answering these questions. The Tommy Hilfiger offices are based in a building on the corner of Oxford and Bolton Roads. The map book says the scale of the map is **1:50 000**.

1. In which block would you find the Melrose Postnet? (1)
- A. C3
B. C4
C. B4
D. D4
2. If you were travelling East along 11th Avenue, in which direction would the Killarney Country club be? (1)
- A. North
B. South
C. East
D. West
3. In blocks A2, A3 and B3 on the map, Bompas Road is 53mm long. Calculate how long (in kilometres) Bompas Road is in reality?. (1)
- A. 2,65m
B. 26,5km
C. 2 650 000mm
D. 2 650cm
4. What area falls in blocks B2 and B3? (1)
- A. Dunkeld
B. Rosebank
C. Melrose
D. Birdhaven





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5. What type of Sports Stadium is in this area?

(1)

- A. Soccer
- B. Golf
- C. Rugby
- D. Cricket

