Practice Exam Questions – Level 2, Adult Numeracy.

Level 2 Adult Numeracy questions: ratio and proportion, maps and scale drawings.
Allow about 30 minutes. You will need a ruler marked in cm and mm.
You may NOT use a calculator. Bilingual dictionaries may be used.

Ratio and Proportion, Maps and Scale Drawings.
MSS1/L2.10 work out dimensions from scale drawings (e.g. 1:20)
(a) understand scale written as a ratio (b) that, when expressed as a ratio, the scale is independent of units
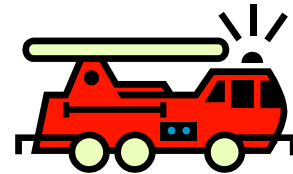**N1/L2.3** calculate ratio and direct proportion
(a) understand ratio written in the form 3:2 (b) how to work out the number of parts in a given ratio, and the value of one part.

Use the information below for question 1
A Fire Service report shows the numbers of different types of fires attended during a year.

chimney fires	420
vehicle fires	770
derelict buildings	44
occupied buildings	960
others	330

1. What is the ratio of chimney fires to fires in occupied buildings, expressed in the simplest terms?

A 42 : 96   **C** 6 : 13
B 7 : 16   **D** 3 : 8

2. Jake makes a model of a boat. The instructions say the length of the real boat is 22 metres. The scale of the model is 1 : 40.
What is the length of the model boat?

A 5.5cm   **C** 55.0cm
B 8.8cm   **D** 88.0cm

3. There is a brilliant surfing beach 25 kilometres from Rovers' Rest but no one can remember its name. Tom has a map with a scale of 2cm to 5km and he measures the distance from Rovers' Rest on the map to 4 local beaches.
Which one is the surfing beach?

A Blackrock Sands 2cm   **C** St Peter's Bay 7cm
B Gull Cove 5cm   **D** Whitesands 10cm

4. Bell ringers take approximately 4 minutes to ring 120 'changes'.
At the same speed of ringing, how long does it take to ring 5 040 'changes'?

A 42 minutes   **C** 2 hours 48 minutes
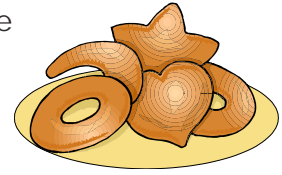**B** 2 hours 8 minutes   **D** 8 hours

Questions 5 and 6 are about a recipe for making biscuits.

Jake is making 55 biscuits for the playgroup Christmas party. He
has a recipe for 20 biscuits, which requires:

> 150g margarine
> 150g sugar
> 1 egg
> 300g self-raising flour
> 50g ground almonds

5. How much flour will he need to make exactly 55 biscuits?

A 413g	**C** 900g
B 825g	**D** 1 650g

6. What is the ratio of ground almonds to sugar to self-raising flour in the recipe?

A 3 : 6 : 1	**C** 1 : 3 : 6
B 6 : 1 : 3	**D** 1 : 6 : 3

7. Sam has to carry out a survey to find out the proportion of students who
travel to college by bus.

Which group of people would it be most useful to interview?

> **A** people at the town's bus station
> **B** people at the nearest bus stop
> **C** people entering the college
> **D** people in the college's staff car park

8. An architect is making a scale model of a new house from a drawing.
One of the dimensions on the drawing shows that the height of the real house is
12.5 metres.

What scale does the architect need to work to, if the height of the model house
has to be 2.5 centimetres?

A 1 : 5	**C** 1 : 100
B 1 : 50	**D** 1 : 500

9. This question is about company employees. The table shows the number of
employees by gender for three years. What is the ratio of women to men in
2000?

Year	Number of Employees	
	Men	**Women**
1998	350	150
1999	290	210
2000	275	225

A 2 : 3	**C** 11 : 9
B 9 : 11	**D** 3 : 2

Questions 10 to 12 are about producing a play.

The plan shows the hall for the performance.

STAGE

Plan of the hall
Scale - 1cm represents 2m

10. From the plan, the actual width of the hall is

A 2.15m   **C** 21.50m
B 8.60m   **D** 86.00m

11. A table is placed at the back of the stage as part of the set. The table measures 1.3m by 0.8m.

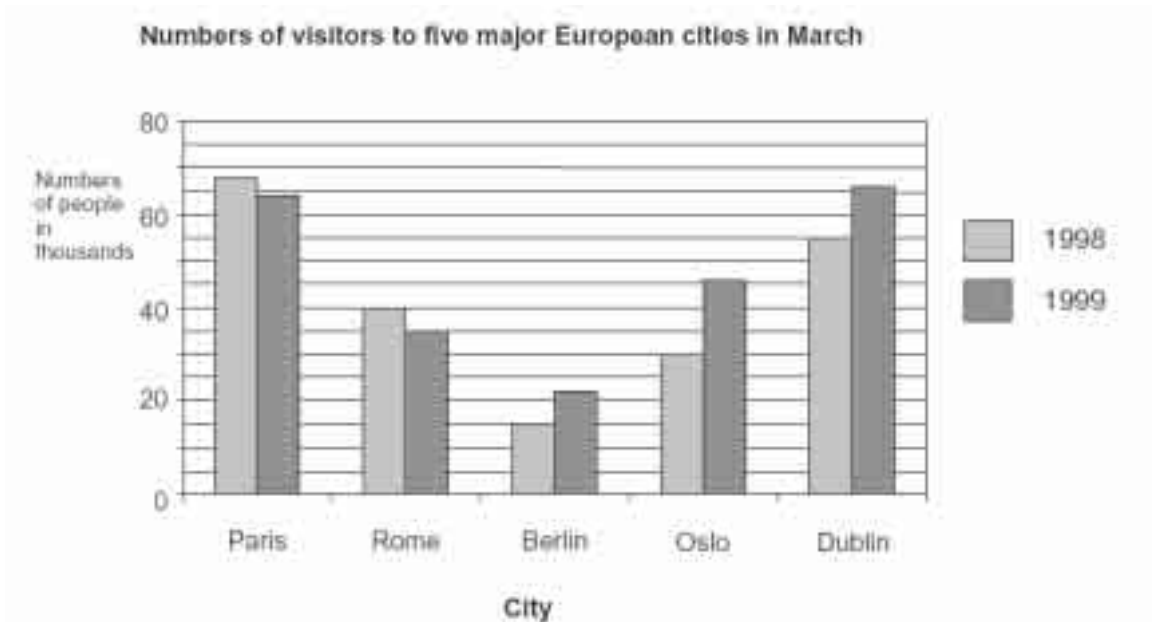**On the plan** the size of the table drawn to scale should be

A 2.6mm by 1.6mm
B 6.5mm by 4mm
C 26mm by 16mm
D 65mm by 40mm

WIDTH

12. Orange squash is sold in the interval. The instructions on the bottle state 'for squash, mix one part concentrate with four parts water.'
How much concentrate is used to make 3 litres of squash?

A 60ml   **C** 600ml
B 75ml   **D** 750ml
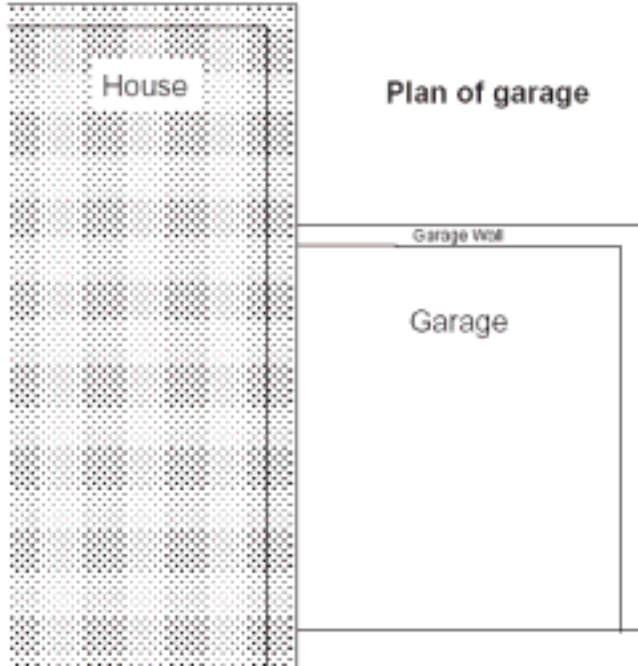
Use the information below for question 13.

A travel company is comparing its results for 1998 with those for 1999. The bar chart shows the numbers of visitors to five major European cities in March of each year.

Numbers of visitors to five major European cities in March

13. What proportion of the visitors to the five cities in 1999 went to Paris?

A About 2 in 10   **C** About 4 in 10
B About 3 in 10   **D** About 6 in 10

14. Shown left is the ground plan for a new garage to be built next to a house.

House

Plan of garage

Garage Wall

Garage

Scale 1 : 150

What is the actual inside width of the garage?

A 6.0 m
B 6.3 m
C 6.5 m
D 7.5 m

Use the information below for questions 15 and 16.
This is the label on a packet of weed killer to treat a garden.

WEEDKILLER
Mix 60 grams of powder with 4.5 litres of water to treat 20 square metres of ground.
1 litre of water weighs 1000 g (1 kg)

15. What is the dilution of the weedkiller, expressed as a ratio of weight of weedkiller : weight of water?

A 1 : 13
B 1 : 17

C 1 : 60
D 1 : 75

16. For best results, the diluted weedkiller mix should be spread evenly over the ground. Approximately how much diluted weedkiller is needed per square metre of ground?

A 0.2 litres
B 3 litres

C 9 litres
D 225 litres

17. 3.2 litres of paint are needed to decorate a bedroom. (1 litre = 1 000cm3). The decorator mixes 3 paint colours together. The amounts of paint are in the ratio: 15 parts of Honey Yellow to 12 parts of Aztec Orange to 5 parts of Ravishing Red. How much Ravishing Red will she need?

A 500cm^3
B 720cm^3

C 1 067cm^3
D 1 200cm^3

Answers

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	Total

Tutor Comments

Answer sheet and teaching notes.

Level 2: Ratio and proportion, maps and scale drawings.

1 – **B** (7: 16)
2 – **C** (55.0cm)
3 – **D** (Whitesands)
4 – **C** (2hr 48mins)
5 – **B** (825g)
6 – **C** (1:3:6)
7 – **C** (students entering college)
8 – **D** (1:500)
9 – **B** (9 : 11)
10 – **B** (8.60m)
11 – **B** (6.5mm x 4mm)
12 – **C** (600ml)
13 – **B** (about 3 in 10)
14 – **B** (6.3m)
15 – **D** (1:75)
16 – **A** (0.2 litres)
17 – **A** (500cm^3)

Allow about 30 minutes

Printing notes:

Although PDF files provide accurate print outs of what is on screen small discrepancies can occur which may affect the sizes of scale drawings.
When printing PDF files ensure that the 'shrink /expand pages to paper size' boxes on the print options page **are not** checked.

Note particularly:

Q10 On paper the width should be 43mm (4.3cm)
Q14 On paper the inside width of the garage should be 42mm