

11+ Maths Practice Paper

Year 4 · Foundation

Lesson 4.3: Scale factors and maps

Read this with your child:

1. This paper has **20 questions** in two parts. Work through them in order. The questions get harder as you go.
2. **Part 1** is multiple choice. Choose **one** answer, A, B, C, D or E, and mark it on the separate answer sheet by drawing a firm line through the box next to its letter. If you change your mind, rub the line out completely and mark your new answer.
3. **Part 2** asks you to write your answer. Write it in the boxes on the answer sheet, **one digit in each box**, starting from the left.
4. If a question is hard, leave it and come back to it at the end.
5. You may use rough paper for working out. You may **not** use a calculator.
6. Suggested time: **25 minutes**.

The answer sheet is after the questions. The answers, with a short explanation of each, are at the back for a parent to mark with.

These are original practice questions written by Elite Learners in the style of 11+ entrance tests. They are not produced by, or connected with, GL Assessment or Cambridge University Press & Assessment (CEM).

Example

A rectangle is 2 cm wide. It is enlarged by scale factor 3.

How wide is the enlargement?

A 3 cm

B 6 cm

C 2 cm

D 5 cm

E 9 cm

Answer: B Multiply by the scale factor: $2 \times 3 = 6$ cm.

The answer, B, has already been marked on your answer sheet.

Now turn over and start Part 1.

Part 1: Multiple choice

1

A triangle has a side 4 cm long. It is enlarged by scale factor 2.

How long is that side on the enlargement?

- A** 10 cm **B** 2 cm **C** 6 cm **D** 16 cm **E** 8 cm

2

A square has sides 3 cm long. It is enlarged by scale factor 5.

How long is each side of the enlargement?

- A** 12 cm **B** 18 cm **C** 8 cm **D** 15 cm **E** 20 cm

3

A rectangle is 2 cm by 3 cm.

Which rectangle is an enlargement of it?

- A** 4 cm by 3 cm **B** 2 cm by 6 cm **C** 4 cm by 6 cm **D** 4 cm by 5 cm **E** 3 cm by 4 cm

4

A photo is 5 cm wide. An enlarged copy of it is 20 cm wide.

What is the scale factor?

- A** 4 **B** 2 **C** 15 **D** 5 **E** 25

5

On a plan of a garden, 1 cm stands for 2 m.

The lawn is 5 cm long on the plan.

How long is the real lawn?

- A** 3 m **B** 10 m **C** 5 m **D** 7 m **E** 12 m

6

On a map, 1 cm stands for 3 km.

Two villages are 4 cm apart on the map.

How far apart are the real villages?

- A** 12 km **B** 16 km **C** 7 km **D** 4 km **E** 9 km

7

A scale bar is split into blocks 1 cm long. It is marked 0, 5, 10, 15 and 20 km.

What does 1 cm on the map stand for?

- A** 10 km **B** 1 km **C** 20 km **D** 15 km **E** 5 km

8

On a map, 1 cm stands for 2 km.

A path has two straight pieces, 3 cm and 4 cm long.

How long is the real path?

- A** 12 km **B** 7 km **C** 14 km **D** 9 km **E** 24 km

9

On a plan, 1 cm stands for 2 m.

A real wall is 8 m long.

How long is the wall on the plan?

- A** 10 cm **B** 6 cm **C** 16 cm **D** 4 cm **E** 8 cm

10

A rectangle is 3 cm wide and 5 cm long.

It is enlarged so that it is 6 cm wide.

How long is the enlargement?

- A** 8 cm **B** 10 cm **C** 30 cm **D** 15 cm **E** 11 cm

11

A picture of a robot is 2 squares wide and 4 squares tall.

It is enlarged so that it is 6 squares wide.

How tall is the enlarged picture?

- A** 12 squares **B** 6 squares **C** 8 squares **D** 24 squares **E** 10 squares

12

On a map, 1 cm stands for 10 km.

A lake is 3 cm wide on the map.

How wide is the real lake?

- A** 33 km **B** 3 km **C** 30 km **D** 10 km **E** 13 km
-

13

On a map, 1 cm stands for 5 km.

Two towns are 35 km apart in real life.

How far apart are they on the map?

- A** 5 cm **B** 175 cm **C** 40 cm **D** 30 cm **E** 7 cm
-

14

On a map, 1 cm stands for 4 km.

A bus route on the map has three straight pieces: 2 cm, 3 cm and 1 cm.

How long is the real bus route?

- A** 18 km **B** 20 km **C** 10 km **D** 24 km **E** 6 km
-

15

A picture is enlarged by scale factor 4.

The enlarged picture is 28 cm tall.

How tall was the original picture?

- A** 7 cm **B** 112 cm **C** 4 cm **D** 24 cm **E** 32 cm

Part 2: Write your answer

16

A rectangle 4 cm wide is enlarged by scale factor 6.

How many centimetres wide is the enlargement?

Write your answer in the boxes on the answer sheet, one digit in each box.

17

On a map, 1 cm stands for 3 km.

A river is 9 cm long on the map.

How many kilometres long is the real river?

Write your answer in the boxes on the answer sheet, one digit in each box.

18

On a plan, 1 cm stands for 5 m.

A real playground is 45 m long.

How many centimetres long is the playground on the plan?

Write your answer in the boxes on the answer sheet, one digit in each box.

19

A triangle has a side 6 cm long. In an enlargement, that side is 42 cm long.

What is the scale factor?

Write your answer in the boxes on the answer sheet, one digit in each box.

20

On a map, 1 cm stands for 2 km.

A trail has three straight pieces: 4 cm, 5 cm and 6 cm.

How many kilometres long is the real trail?

Write your answer in the boxes on the answer sheet, one digit in each box.

Answer sheet

11+ Maths Practice Paper · Year 4 · Lesson 4.3: Scale factors and maps

Name

Draw a firm line through the box next to your answer, like the example.

Part 1: Multiple choice

Ex	A ☐	B ☒	C ☐	D ☐	E ☐
1	A ☐	B ☐	C ☐	D ☐	E ☐
2	A ☐	B ☐	C ☐	D ☐	E ☐
3	A ☐	B ☐	C ☐	D ☐	E ☐
4	A ☐	B ☐	C ☐	D ☐	E ☐
5	A ☐	B ☐	C ☐	D ☐	E ☐
6	A ☐	B ☐	C ☐	D ☐	E ☐
7	A ☐	B ☐	C ☐	D ☐	E ☐
8	A ☐	B ☐	C ☐	D ☐	E ☐
9	A ☐	B ☐	C ☐	D ☐	E ☐
10	A ☐	B ☐	C ☐	D ☐	E ☐
11	A ☐	B ☐	C ☐	D ☐	E ☐
12	A ☐	B ☐	C ☐	D ☐	E ☐
13	A ☐	B ☐	C ☐	D ☐	E ☐
14	A ☐	B ☐	C ☐	D ☐	E ☐
15	A ☐	B ☐	C ☐	D ☐	E ☐

Part 2: Write your answer, one digit in each box

16		
17		
18		
19		
20		

Answers

For a parent to mark with. One mark for each question: the paper is out of 20. Talk through any your child got wrong, using the explanation.

Q	Answer	How to get it
1	E 8 cm	Multiply by the scale factor: $4 \times 2 = 8$ cm.
2	D 15 cm	Multiply by the scale factor: $3 \times 5 = 15$ cm.
3	C 4 cm by 6 cm	Both sides are multiplied by the same number: $2 \times 2 = 4$ and $3 \times 2 = 6$. Adding 2 to each side (4 cm by 5 cm) changes the shape.
4	A 4	Big $\div$ small: $20 \div 5 = 4$. The copy is 4 times as wide.
5	B 10 m	Plan to real life: multiply. $5 \times 2 = 10$ m.
6	A 12 km	Map to real life: multiply. $4 \times 3 = 12$ km.
7	E 5 km	The bar starts at 0, and the first block ends at 5, so 1 cm stands for 5 km.
8	C 14 km	Add the pieces: $3 + 4 = 7$ cm. Then multiply: $7 \times 2 = 14$ km.
9	D 4 cm	Real life to the plan: divide. $8 \div 2 = 4$ cm.
10	B 10 cm	The scale factor is $6 \div 3 = 2$, so the length is $5 \times 2 = 10$ cm. Adding 3 (8 cm) is wrong.
11	A 12 squares	The scale factor is $6 \div 2 = 3$, so the height is $4 \times 3 = 12$ squares.
12	C 30 km	Map to real life: multiply. $3 \times 10 = 30$ km.
13	E 7 cm	Real life to the map: divide. $35 \div 5 = 7$ cm.
14	D 24 km	Add the pieces: $2 + 3 + 1 = 6$ cm. Then multiply: $6 \times 4 = 24$ km.
15	A 7 cm	Going back to the original: divide. $28 \div 4 = 7$ cm.
16	24	Multiply by the scale factor: $4 \times 6 = 24$ cm.
17	27	Map to real life: multiply. $9 \times 3 = 27$ km.
18	9	Real life to the plan: divide. $45 \div 5 = 9$ cm.
19	7	Big $\div$ small: $42 \div 6 = 7$.
20	30	Add the pieces: $4 + 5 + 6 = 15$ cm. Then multiply: $15 \times 2 = 30$ km.

Score: out of 20