FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

R2: Scale and maps

Solve problems involving scale factors, scale drawings and maps

20 marks · 25 minutes · Non-calculator

1) On a map with scale 1 : 25 000, a walk is 6 cm long. Ella walks at 5 km/h. How long does the walk take, in minutes?

..... minutes

[Question 1: 3 marks]

2) A model ship is made to a scale of 1 : 200. The model is 45 cm long. How long is the real ship, in metres?

..... m

[Question 2: 2 marks]

3) A plan has scale 1 : 50. A room is 9 cm by 7 cm on the plan. Carpet costs £20 per m^2. How much does it cost to carpet the room?

£ .....

[Question 3: 4 marks]

4) Two maps show the same area. One has scale 1 : 50 000 and the other 1 : 20 000. A road is 4 cm long on the first map. How long is it on the second?

..... cm

[Question 4: 3 marks]

5) A 10 cm by 15 cm photo is enlarged so that its shorter side is 25 cm. Find the longer side of the enlargement and how many times bigger its area is.

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[Question 5: 3 marks]

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6) A lake has an area of 3 cm^2 on a map with scale 1 : 200 000. Find its real area in km^2.

..... km^2

[Question 6: 3 marks]

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7) On a scale drawing, an 18 m tree is drawn 4.5 cm tall. A house is drawn 2.5 cm tall. How tall is the real house?

..... m

[Question 7: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	18	Real distance 1.5 km (P1); 1.5 ÷ 5 = 0.3 hours (P1); 18 minutes (A1).
2	90	45 × 200 = 9000 cm (P1); A1.
3	£315	Real 4.5 m by 3.5 m (P1, P1); 15.75 m^2 (P1); £315 (A1).
4	10	Real 2 km (P1); 200 000 ÷ 20 000 (P1); A1.
5	37.5 cm; 6.25	Scale factor 2.5 (P1); 37.5 (A1); 2.5^2 (A1).
6	12	1 cm = 2 km, so 1 cm^2 = 4 km^2 (P1, P1); A1.
7	10	1 cm = 4 m (P1); A1.