crackmaths

128. Applying Concepts of Congruency and Similarity to Solve Length Problems ©

Practice Questions

1. Two triangles are similar with a scale factor of 2. If one side in the small triangle is 4 cm, how long is the corresponding side in the large triangle?

2. Two rectangles are similar. The smaller rectangle has a width of 3 cm and the larger one has a width of 6 cm. If the small rectangle's length is 5 cm, what is the large rectangle's length?

3. A triangle has a hypotenuse of 10 cm, and a similar triangle has a hypotenuse of 15 cm. If one leg of the smaller triangle is 6 cm, find the corresponding leg in the larger triangle.

4. Two pentagons are similar. The scale factor is 3. If a side of the smaller pentagon is 7 cm, what is the side length of the larger pentagon?

5. Two squares are similar, with a scale factor of 4. If the smaller square has an area of 9 cm², find the area of the larger square.

6. A right-angled triangle has sides 3 cm, 4 cm, and 5 cm. A similar triangle has a hypotenuse of 10 cm. Find the length of the other two sides.

7. Two trapeziums are similar with a scale factor of 1.5. If one side in the smaller trapezium is 8 cm, what is the corresponding length in the larger trapezium?

8. A pair of similar parallelograms have a scale factor of 5. If a side in the smaller parallelogram is 2 cm, what is the corresponding side in the larger parallelogram?

9. A photograph is scaled up by a factor of 2.5. If the original width was 12 cm, what is the new width?

10. A shadow of a 2 m tall pole is 3 m. A tree casts a shadow of 12 m. How tall is the tree?

Extra Content for Foundation GCSE

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Scenario Questions

1. A flagpole and its shadow form a right-angled triangle. If the shadow is 5 m long and a similar 2 m pole casts a 2.5 m shadow, find the height of the flagpole.

2. A model building is made to a scale of 1:50. If the real building is 150 m tall, how tall is the model?

3. A bridge has two similar support structures. If one support is 12 m high and the smaller one is 8 m high, find the scale factor.

4. A TV screen is scaled up by a factor of 1.8. If the original width was 60 cm, what is the new width?

5. A painting is enlarged in proportion. If the original dimensions were 40 cm by 50 cm, and the width is now 100 cm, find the new height.

6. A tree casts a shadow of 15 m, and a 1.8 m tall person casts a shadow of 3 m. Find the tree's height.

7. A scaled-down car model has a length of 10 cm. If the real car is 4 m long, what is the scale factor?

8. A building is 75 m tall. A scale model is made at a 1:25 ratio. Find the height of the model.

9. A ship is 150 m long. A model is built at a scale of 1:100. Find the length of the model.

10. A sports court is scaled down by a factor of 0.4. If the full-sized court is 50 m long, how long is the scaled-down version?

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Practice Questions

1. 8 cm
2. 10 cm
3. 9 cm
4. 21 cm
5. 144 cm²
6. 6 cm and 8 cm
7. 12 cm
8. 10 cm
9. 30 cm
10. 8 m

Answers

Scenario Questions

1. 4 m
2. 3 m
3. 1.5
4. 108 cm
5. 125 cm
6. 9 m
7. 1:40
8. 3 m
9. 1.5 m
10. 20 m