LESSON MAKER PRO

Scale Factor Snap

Compare an image to its preimage.

GRADE 8 · MA.8.GR.2.2

MA.8.GR.2.2 "Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship."

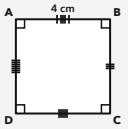
NAME _____ DATE _____

FIND THE MULTIPLIER

A dilation multiplies every length by the same scale factor. Divide an image length by its matching preimage length: k = image length / preimage length.

WORKED EXAMPLE

The square shown is the preimage. A corresponding side of its image is 10 cm. Find the scale factor.



1. Image side = 10 cm.
2. Preimage side = 4 cm.
3. k = 10/4.
4. k = 5/2.

Answer: 5/2

PRACTICE 4 problems

1 A 9 cm preimage side becomes a 3 cm image side. Find k.

ANSWER _____

2 A preimage side is 7/2 cm. Its image side is 14 cm. Find k.

ANSWER _____

3 A 15 cm image side matches a 12 cm preimage side. Find k.

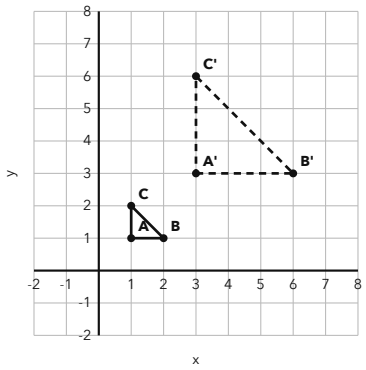
ANSWER _____

4 Point P(3, 2) maps to P'(9, 6) in a dilation centered at the origin. Find k.

ANSWER _____

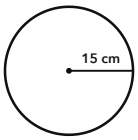
APPLY IT Show your work

1 On the grid, solid triangle ABC is a game-logo design. Dashed triangle A'B'C' is its printed version. What is the scale factor from solid to dashed?



ANSWER _____

2 The music club's enlarged circular patch is shown. The original patch had a radius of 6 cm. What scale factor took the original patch to the enlarged patch?



ANSWER _____

CHALLENGE One step up

A dilation sends a triangle with side lengths 12 cm and 20 cm to a triangle with matching side lengths 18 cm and 30 cm. Find k. Explain why the same k works for both sides.

WORK SPACE AND ANSWER

ANSWER KEY

Scale Factor Snap

GRADE 8 · MA.8.GR.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A 9 cm preimage side becomes a 3 cm image side. Find k.	**1/3**
2	A preimage side is 7/2 cm. Its image side is 14 cm. Find k.	**4**
3	A 15 cm image side matches a 12 cm preimage side. Find k.	**5/4**
4	Point P(3, 2) maps to P'(9, 6) in a dilation centered at the origin. Find k.	**3**

PART 2 · APPLY IT

1. **3** Compare corresponding side lengths, such as AB = 1 unit and A'B' = 3 units. The ratio 3/1 is 3.
2. **5/2** Divide the enlarged radius by the original radius: 15/6 = 5/2.

CHALLENGE

k = 3/2; 18/12 = 3/2 and 30/20 = 3/2.

Accept equivalent fractions and decimals where appropriate. For the challenge, accept any explanation that shows both corresponding-length ratios are 3/2.