

Scale Factor Detectives

Compare matching sides in similar figures.

GRADE 7 • TEKS 7.5.A

7.5.A "generalize the critical attributes of similarity, including ratios within and between similar shapes;"

NAME _____

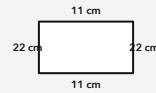
DATE _____

MATCHING RATIOS

Similar shapes have equal matching angles and matching side lengths in one constant ratio. Divide a new length by its matching original length to find the scale factor, then multiply every matching side by that factor.

WORKED EXAMPLE

The rectangle shown is similar to a second rectangle. Its side that matches the 11 cm side is 33 cm. Find the side that matches 22 cm.



1. Scale factor = $33/11 = 3$.
2. Multiply the matching side: $22 \times 3 = 66$.

Answer: 66 cm

PRACTICE 4 problems

- 1** A shape is enlarged by a scale factor of 2. An 8 cm side becomes how long?

ANSWER _____

- 2** Similar triangles have small sides 5 cm, 7 cm, and 9 cm. The side matching 5 cm on the larger triangle is 10 cm. Find the sides matching 7 cm and 9 cm.

ANSWER _____

- 3** A 6 cm by 10 cm rectangle is similar to a rectangle with a matching 10 cm side of 20 cm. Find its other side and the scale factor.

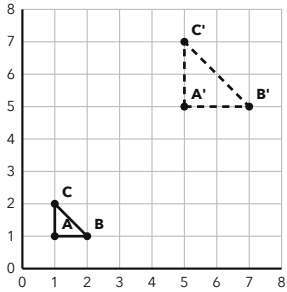
ANSWER _____

- 4** For similar figures, $4/10 = x/25$. Find x .

ANSWER _____

APPLY IT Show your work

- 1** A game club uses the solid triangle for a logo and the dashed triangle for a poster. Use the grid. What is the scale factor from the solid logo to the dashed poster? If the solid logo perimeter is 16 cm, what is the poster perimeter?



ANSWER _____

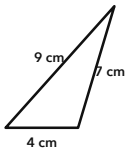
- 2** A music playlist cover is 8 cm wide and 5 cm tall. A similar banner is 16 cm wide. What is the banner's height?

WORK SPACE

ANSWER _____

CHALLENGE One step up

The triangle shown has a second triangle with corresponding sides 8 cm, 14 cm, and 18 cm. Are the triangles similar? Explain using the ratios of matching sides.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A shape is enlarged by a scale factor of 2. An 8 cm side becomes how long?	16 cm
2	Similar triangles have small sides 5 cm, 7 cm, and 9 cm. The side matching 5 cm on the larger triangle is 10 cm. Find the sides matching 7 cm and 9 cm.	14 cm and 18 cm
3	A 6 cm by 10 cm rectangle is similar to a rectangle with a matching 10 cm side of 20 cm. Find its other side and the scale factor.	12 cm; scale factor 2
4	For similar figures, $4/10 = x/25$. Find x.	10

PART 2 • APPLY IT

1. **Scale factor 2; poster perimeter 32 cm** Each matching side on the dashed triangle is twice as long. Multiply 16 cm by 2.
2. **10 cm** The width is multiplied by 2, so multiply the height by 2.

CHALLENGE

Yes. $8/4 = 14/7 = 18/9 = 2$, so all matching side lengths have the same ratio.

Accept equivalent ratio statements and correctly simplified scale factors. For the challenge, accept an explanation that all three corresponding side ratios are equal to 2.