LESSON MAKER PRO

Scale It Up

Use corresponding sides to solve similar polygon problems.

HIGH SCHOOL · G.2D.1.8

G.2D.1.8 "Apply the properties of congruent or similar polygons to solve problems using mathematical models and algebraic and logical reasoning."

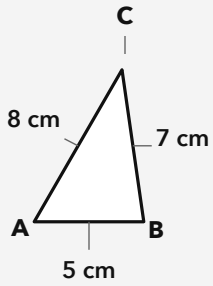
NAME _____ DATE _____

MATCH, THEN MULTIPLY

Similar polygons have equal ratios between corresponding side lengths. Match the sides in the same order, find the scale factor, and use it to solve for a missing length.

WORKED EXAMPLE

Triangles ABC and DEF are similar in the order shown. If DE = 15 cm, find FD.

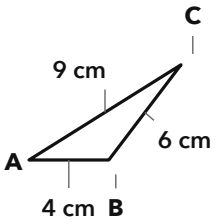


1. AB corresponds to DE, so the scale factor is 15/5 = 3.
2. CA corresponds to FD, so FD = 3 × 8.
3. FD = 24 cm.

Answer: 24 cm

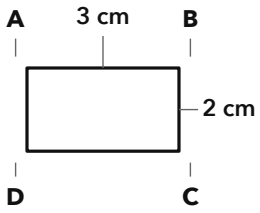
PRACTICE 6 problems

1 Triangles ABC and DEF are similar in the order shown. If DE = 12 cm, find EF.



ANSWER _____

2 Rectangles ABCD and EFGH are similar in the order shown. If EF = 18 cm, find FG.



ANSWER _____

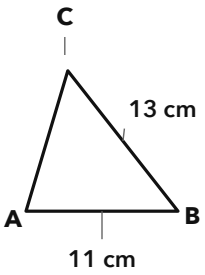
3 Triangles ABC and DEF are similar. AB = 9 cm, BC = 12 cm, and DE = 27 cm. Find EF.

ANSWER _____

4 Similar pentagons ABCDE and PQRST have AB = 3x + 2, PQ = 40, BC = 6, and QR = 12. Find x.

ANSWER _____

5 Triangles ABC and DEF are similar in the order shown. If DE = 22 cm and EF = 2x + 4 cm, find x.



ANSWER _____

6 Two similar polygons have corresponding sides of 3 cm and 9 cm. The smaller polygon has a perimeter of 26 cm. Find the larger polygon's perimeter.

ANSWER _____

APPLY IT Show your work

1 You make a 4 cm wide and 9 cm tall image for a school event. You enlarge it to a similar flyer that is 16 cm wide. How tall is the flyer?

WORK SPACE

ANSWER _____

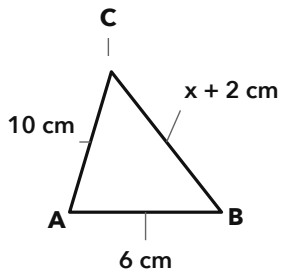
2 An esports club enlarges a triangular logo for a banner. A 3 cm side of the original becomes 18 cm on the banner. How long is the banner side that corresponds to an 11 cm side of the original?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A designer claims triangle ABC is similar to triangle DEF in the order shown. The designer gives DE = 18 cm, EF = 36 cm, and FD = 32 cm. Use the figure to find x from the first two pairs of corresponding sides. Then decide whether all three pairs support the claim. Explain your reasoning.



WORK SPACE AND ANSWER

Scale It Up

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Triangles ABC and DEF are similar in the order shown. If DE = 12 cm, find EF.	**18 cm**
2	Rectangles ABCD and EFGH are similar in the order shown. If EF = 18 cm, find FG.	**12 cm**
3	Triangles ABC and DEF are similar. AB = 9 cm, BC = 12 cm, and DE = 27 cm. Find EF.	**36 cm**
4	Similar pentagons ABCDE and PQRST have AB = 3x + 2, PQ = 40, BC = 6, and QR = 12. Find x.	**x = 6**
5	Triangles ABC and DEF are similar in the order shown. If DE = 22 cm and EF = 2x + 4 cm, find x.	**x = 11**
6	Two similar polygons have corresponding sides of 3 cm and 9 cm. The smaller polygon has a perimeter of 26 cm. Find the larger polygon's perimeter.	**78 cm**

PART 2 · APPLY IT

1. **36 cm** The width scale factor is 16/4 = 4. Multiply the original height by 4: 9 × 4 = 36 cm.
2. **66 cm** The scale factor is 18/3 = 6. The corresponding banner side is 11 × 6 = 66 cm.

CHALLENGE

x = 10. The claim is false: DE/AB = 18/6 = 3 and EF/BC = 36/12 = 3, but FD/CA = 32/10, which is not 3.

Accept equivalent proportions or scale-factor methods. In the challenge, accept any clear comparison showing that the third pair does not have the same ratio.