LESSON MAKER PRO

Triangle Scale Lab

Use matching sides to solve similar-triangle problems.

GRADE 8 · MA.8.GR.2.4

MA.8.GR.2.4 "Solve mathematical and real-world problems involving proportional relationships between similar triangles."

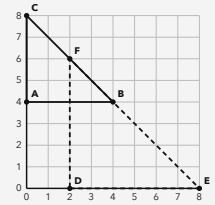
NAME _____ DATE _____

MATCH, THEN SCALE

Similar triangles have matching sides in the same ratio. Find the scale factor with one pair of matching sides, then multiply or divide to find a missing length.

WORKED EXAMPLE

The triangles in the grid are similar. Find DF.



1. AB = 4 and DE = 6.
2. Scale factor = 6/4 = 3/2.
3. DF = 4(3/2) = 6.

Answer: DF = 6 units

PRACTICE 4 problems

1 Triangle ABC is similar to triangle DEF. AB = 9, DE = 15, and BC = 12. Find EF.

ANSWER _____

2 Triangle PQR is similar to triangle XYZ. PQ = 7, XY = 21, and QR = 11. Find YZ.

ANSWER _____

3 A small triangle has a side of 18 cm. The matching side of a similar larger triangle is 30 cm. Another side of the larger triangle is 25 cm. Find its matching small side.

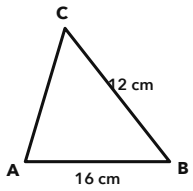
ANSWER _____

4 A triangle has a perimeter of 28 inches. A similar triangle is enlarged by a scale factor of 5/2. Find the enlarged perimeter.

ANSWER _____

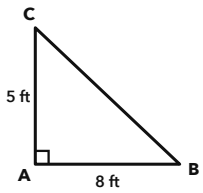
APPLY IT Show your work

1 For a school-club banner, the triangle shown is similar to a smaller version. The side matching the 16 cm side is 10 cm. Find the smaller side matching 12 cm.



ANSWER _____

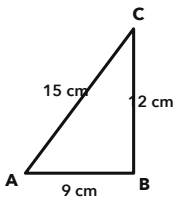
2 At practice, the right triangle shown models a player's height and shadow. A hoop casts a 24 ft shadow at the same time. The hoop and player form similar triangles. Find the hoop's height.



ANSWER _____

CHALLENGE One step up

The triangle shown has a perimeter of 36 cm. A similar larger triangle has a side of 15 cm that matches the 9 cm side shown. Find the larger triangle's perimeter.



WORK SPACE AND ANSWER

ANSWER KEY

Triangle Scale Lab

GRADE 8 · MA.8.GR.2.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Triangle ABC is similar to triangle DEF. AB = 9, DE = 15, and BC = 12. Find EF.	**20**
2	Triangle PQR is similar to triangle XYZ. PQ = 7, XY = 21, and QR = 11. Find YZ.	**33**
3	A small triangle has a side of 18 cm. The matching side of a similar larger triangle is 30 cm. Another side of the larger triangle is 25 cm. Find its matching small side.	**15 cm**
4	A triangle has a perimeter of 28 inches. A similar triangle is enlarged by a scale factor of 5/2. Find the enlarged perimeter.	**70 inches**

PART 2 · APPLY IT

1. **15/2 cm** The scale factor from the shown banner to the smaller banner is 10/16 = 5/8. Multiply 12 by 5/8 to get 15/2 cm.
2. **15 ft** The height-to-shadow ratio is 5/8. Set x/24 = 5/8, so x = 15 ft.

CHALLENGE

60 cm

Accept equivalent forms, including 7.5 cm for 15/2 cm. For the challenge, the scale factor is 15/9 = 5/3, so the perimeter is 36(5/3) = 60 cm.