

Triangle Scale Quest

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 equal matching angles and corresponding sides in equal ratios. Use the order of the triangle names to match vertices, then write a proportion with two pairs of corresponding sides and solve for x .

WORKED EXAMPLE

Triangle JKL is similar to triangle MNP. JK = 18, KL = 30, and MN = 12. Find NP.

1. JK corresponds to MN, and KL corresponds to NP.
2. $18/12 = 30/x$
3. $18x = 360$
4. $x = 20$

Answer: NP = 20

PRACTICE 6 problems

- 1** Triangle ABC is similar to triangle DEF. AB = 3, DE = 5, and BC = 9. Find EF.

ANSWER _____

- 2** Triangle GHI is similar to triangle QRS. GH = 4, HI = 10, and QR = 6. Find RS.

ANSWER _____

- 3** Triangle TUV is similar to triangle WXY. TU = 7, UV = 11, and WX = 14. Find XY.

ANSWER _____

- 4** Triangle CDE is similar to triangle FGH. CD = 16, FG = 24, and DE = 26. Find GH.

ANSWER _____

- 5** Triangle LMN is similar to triangle ABC. LM = 13, MN = x , AB = 26, and BC = 34. Find x .

ANSWER _____

- 6** Triangle RST is similar to triangle UVW. RS = 25, ST = 35, and UV = 15. Find VW.

ANSWER _____

APPLY IT Show your work

- 1** At a school festival, a 4-foot light stand casts a 6-foot shadow. At the same time, a flagpole casts a 24-foot shadow. How tall is the flagpole?

WORK SPACE

ANSWER _____

- 2** A gaming club prints a triangular banner from a similar sketch. On the sketch, a side is 7 cm and the base is 9 cm. On the banner, the matching base is 36 cm. How long is the matching side?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Triangle RST is similar to triangle UVW. $RS = 5$, $ST = 7$, $RT = 11$, and $UV = 15$. What is the perimeter of triangle UVW? Show your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Triangle ABC is similar to triangle DEF. $AB = 3$, $DE = 5$, and $BC = 9$. Find EF.	EF = 15
2	Triangle GHI is similar to triangle QRS. $GH = 4$, $HI = 10$, and $QR = 6$. Find RS.	RS = 15
3	Triangle TUV is similar to triangle WXY. $TU = 7$, $UV = 11$, and $WX = 14$. Find XY.	XY = 22
4	Triangle CDE is similar to triangle FGH. $CD = 16$, $FG = 24$, and $DE = 26$. Find GH.	GH = 39
5	Triangle LMN is similar to triangle ABC. $LM = 13$, $MN = x$, $AB = 26$, and $BC = 34$. Find x.	x = 17
6	Triangle RST is similar to triangle UVW. $RS = 25$, $ST = 35$, and $UV = 15$. Find VW.	VW = 21

PART 2 • APPLY IT

- 16 feet** The light stand and flagpole form similar triangles with their shadows. Set $4/6 = x/24$, so $x = 16$ feet.
- 28 cm** The scale factor from the sketch to the banner is $36/9 = 4$. Multiply 7 by 4 to get 28 cm.

CHALLENGE

69 units. The scale factor is $15/5 = 3$, so the other sides are 21 and 33. Then $15 + 21 + 33 = 69$.

Accept correct units where requested. Students may use either ratio orientation if they match corresponding sides consistently.