LESSON MAKER PRO

Triangle Match Lab

Test whether pairs of triangles are similar.

HIGH SCHOOL · GDA.GM.F.28.b

GDA.GM.F.28.b "Verify that two triangles are similar if (but not only if) two pairs of corresponding angles are congruent (AA), the corresponding sides are proportional (SSS)..."

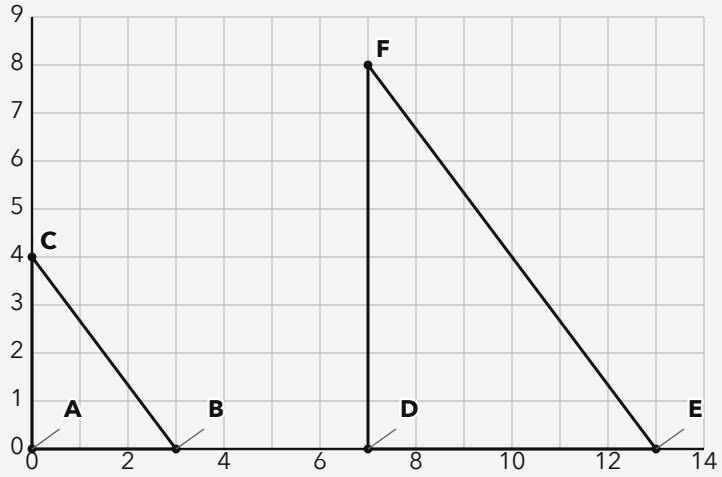
NAME _____ DATE _____

THREE SIMILARITY TESTS

Match corresponding parts in the same order. Two equal angle pairs give AA; three equal side ratios give SSS; two equal side ratios and an equal included angle give SAS.

WORKED EXAMPLE

Are triangles ABC and DEF similar? Use the grid.



1. AB=3, AC=4, and BC=5 by the Pythagorean theorem.
2. DE=6, DF=8, and EF=10.
3. AB/DE=AC/DF=BC/EF=1/2.

Answer: Yes. Triangle ABC is similar to triangle DEF by SSS.

PRACTICE 4 problems

1 Similar? Give a test. ABC: AB=7, BC=9, AC=11. DEF: DE=14, EF=18, DF=22.

ANSWER _____

2 Similar? Show why or why not. ABC: AB=7, BC=9, AC=11. DEF: DE=14, EF=18, DF=24.

ANSWER _____

3 Similar? Give a test. AB=7, AC=13, and angle A=42°. DE=21, DF=39, and angle D=42°.

ANSWER _____

_____

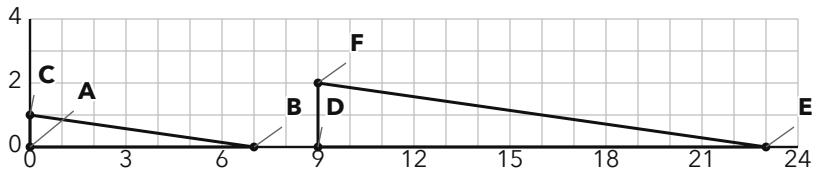
4 Similar? Give a test. Angle A=37° and angle B=73°. Angle D=37° and angle E=73°.

ANSWER _____

_____

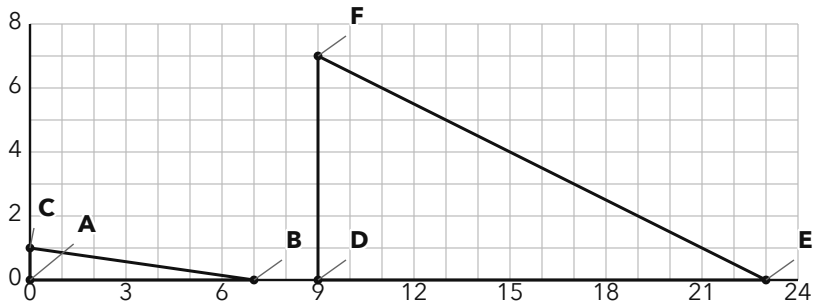
APPLY IT Show your work

1 A design club enlarges its logo on the grid. Is the larger triangle a scale copy? Name a similarity test.



ANSWER _____

2 A skate park compares two ramp profiles on the grid. Is the larger triangle a scale copy? Compare the leg ratios.



ANSWER _____

CHALLENGE One step up

Angle A=angle D=57°. AB=7, AC=x+2, DE=14, and DF=18. Find x so triangles ABC and DEF are similar by SAS.

WORK SPACE AND ANSWER

ANSWER KEY # Triangle Match Lab

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Similar? Give a test. ABC: AB=7, BC=9, AC=11. DEF: DE=14, EF=18, DF=22.	**Yes, SSS. 7/14=9/18=11/22=1/2.**
2	Similar? Show why or why not. ABC: AB=7, BC=9, AC=11. DEF: DE=14, EF=18, DF=24.	**No. 7/14=9/18=1/2, but 11/24 is not 1/2.**
3	Similar? Give a test. AB=7, AC=13, and angle A=42°. DE=21, DF=39, and angle D=42°.	**Yes, SAS. 7/21=13/39=1/3, and the included angles are equal.**
4	Similar? Give a test. Angle A=37° and angle B=73°. Angle D=37° and angle E=73°.	**Yes, AA. Angles A and D match, as do angles B and E.**

PART 2 · APPLY IT

1. **Yes, by SAS.** The corresponding legs have ratios 7/14=1/2 and 1/2=1/2. Their included angles are both right angles.
2. **No. 7/14=1/2, but 1/7 is not 1/2.** Both triangles have a right angle, but their corresponding leg ratios differ, so they are not similar.

CHALLENGE

x=7, since 7/14=(x+2)/18 gives x+2=9.

Accept equivalent ratio comparisons. For the grid problems, students may use the right angles as the included angle in SAS.