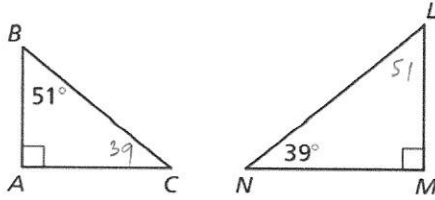


AA Similarity of Triangles

Practice and Problem Solving: A/B

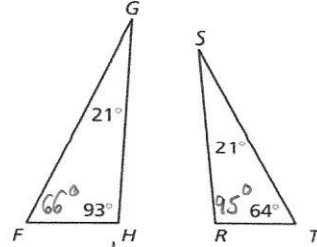
For Problems 1 and 2, determine if the triangles are similar. If they are, give a reason and write a similarity statement.

1.



Similar, AA~, $\triangle ABC \sim \triangle MLN$

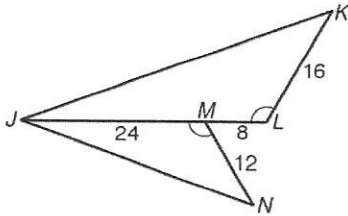
2.



not similar

For Problem 3, give a reason that the triangles are similar.

3. $\triangle JLK$ and $\triangle JMN$



$$\frac{JL}{JM} = \frac{32}{24} = \frac{4}{3}$$

$$\frac{KL}{NM} = \frac{16}{12} = \frac{4}{3}$$

similar by SAS~

For Problem 4, explain why the triangles are similar and find the stated length.

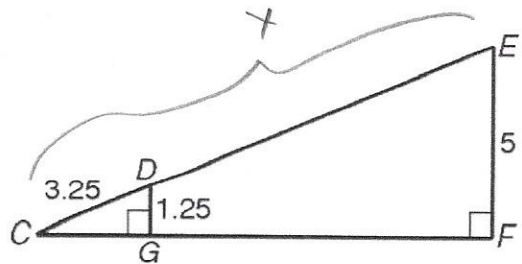
4. DE similar by AA~

$$\frac{1.25}{5} = \frac{3.25}{x}$$

$$1.25x = 16.25$$

$$x = 13$$

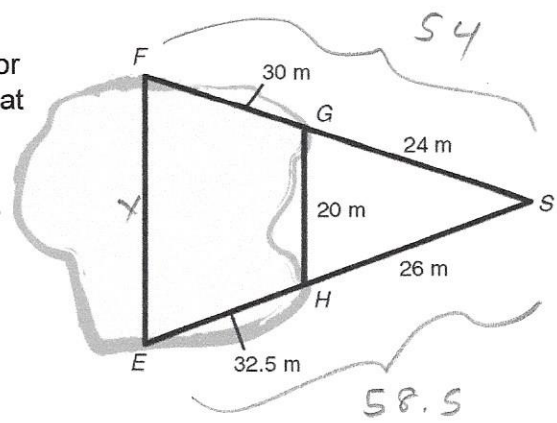
$$DE = 13 - 3.25 = 9.75$$



5. To measure the distance EF across the lake, a surveyor at S locates points $E, F, G,$ and H as shown. Verify that the triangles are similar, and then find EF .

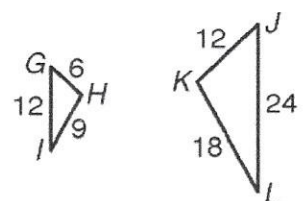
$$\left. \begin{aligned} \frac{24}{54} &= .4 \\ \frac{26}{58.5} &= .4 \end{aligned} \right\} \text{similar by SAS} \sim$$

$$\begin{aligned} \frac{24}{54} &= \frac{20}{x} \\ 24x &= 1080 \\ x &= 45 \end{aligned}$$

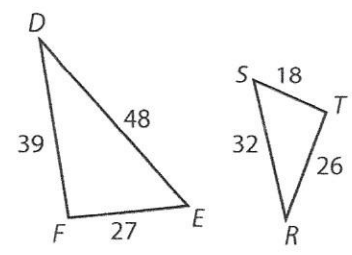


For Problems 6 and 7, find the ratio of the side lengths to show that the triangles are similar by the Side-Side-Side (SSS) Similarity Theorem.

6. $\frac{GH}{JK} = \frac{6}{12} = \frac{1}{2}$ $\frac{HI}{KL} = \frac{9}{18} = \frac{1}{2}$ $\frac{GI}{JL} = \frac{12}{24} = \frac{1}{2}$



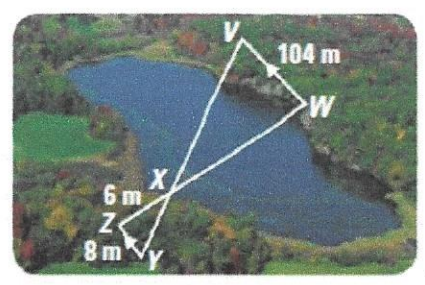
7. $\frac{DE}{RS} = \frac{48}{32} = \frac{3}{2}$ $\frac{EF}{ST} = \frac{27}{18} = \frac{3}{2}$ $\frac{DF}{RT} = \frac{39}{26} = \frac{3}{2}$



8. You can measure the width of the lake using a surveying technique, as shown in the diagram.

a. Find the width of the lake, WX .

$$\begin{aligned} \frac{8}{104} &= \frac{6}{x} \\ 8x &= 624 \\ x &= 78 \end{aligned}$$



b. If $XY = 10$ meters, find VX .

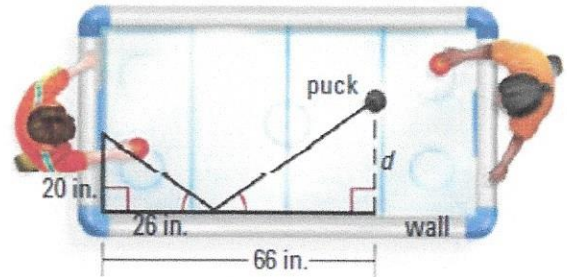
$$\begin{aligned} \frac{8}{104} &= \frac{10}{y} \\ 8y &= 1040 \\ y &= 130 \end{aligned}$$

9. An air hockey player returns the puck to his opponent by bouncing the puck off the wall of the table as shown. From physics, the angles that the path of the puck makes with the wall are congruent. What is the distance d between the puck and the wall when the opponent returns it?

$$\frac{20}{d} = \frac{26}{40}$$

$$26d = 800$$

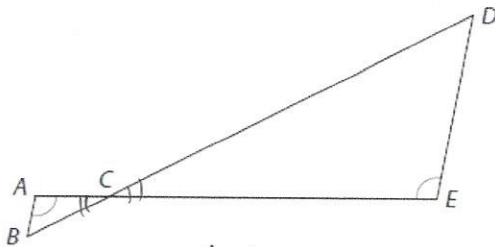
$$d = \frac{400}{13} = 30.8$$



Homework Section

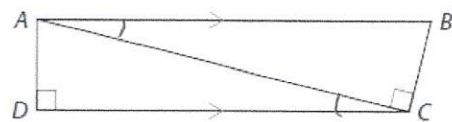
Determine whether the two triangles are similar. If they are similar, write the similarity statement.

5.



yes, AA ~
 $\triangle ABC \sim \triangle EDC$

6.



yes, AA ~
 $\triangle ADC \sim \triangle BCA$

Explain how you know whether the triangles are similar. If possible, find the indicated length.

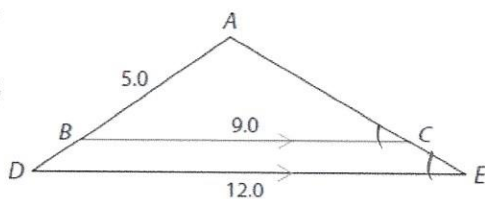
8. AD

similar by AA ~

$$\frac{9}{12} = \frac{5}{x}$$

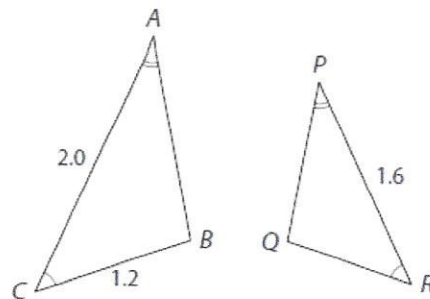
$$9x = 60$$

$$x = \frac{20}{3}$$



9. QR

similar by AA ~



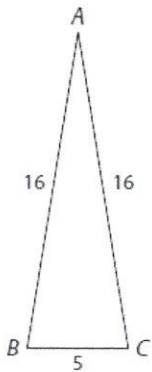
$$\frac{2.0}{1.6} = \frac{1.2}{x}$$

$$2x = 1.92$$

$$x = .96$$

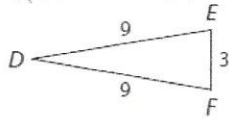
Show whether or not each pair of triangles are similar, if possible. Justify your answer, and write a similarity statement when the triangles are similar.

11.

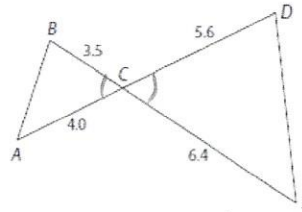


$$\frac{16}{9} \quad \frac{16}{9} \quad \frac{5}{3}$$

not equal, so
not similar



12.

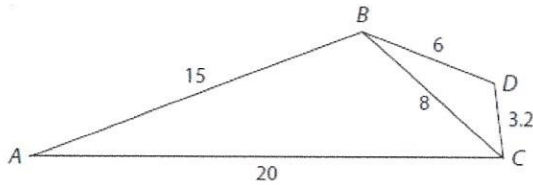


$$\frac{3.5}{5.6} \quad \frac{4.0}{6.4}$$

both $\frac{5}{8}$

similar by SAS ~
 $\triangle ABC \sim \triangle EDC$

13.

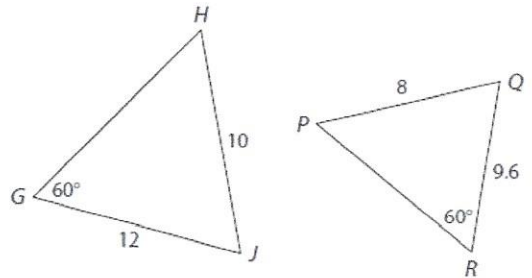


$$\frac{8}{3.2} \quad \frac{15}{6} \quad \frac{20}{8}$$

all are $\frac{5}{2}$

similar by SSS ~
 $\triangle ABC \sim \triangle BDC$

14.



not SAS, so not
enough to decide
similar