7.3 Day 1 Homework Page 486 #1-6, 11-16, 19, 26

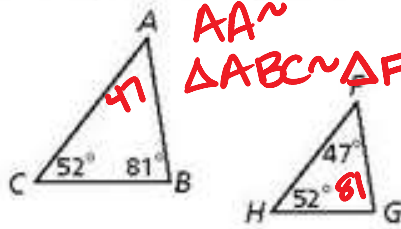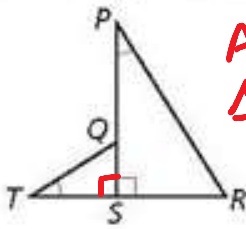**Explain why the triangles are similar and write a similarity statement.**

1.

AA~
$\triangle ABC \sim \triangle FGH$

52° 81° at B, 47° at A; 47° 52° 81° at H G
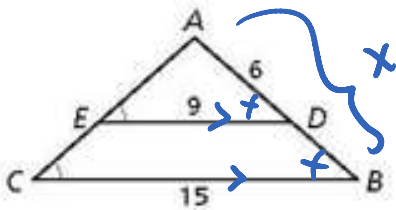
2.

AA~
$\triangle TSQ \sim \triangle PSR$

Verify that the triangles are similar.

3. $\triangle DEF$ and $\triangle JKL$ $\dfrac{DF}{JL} = \dfrac{6}{12} = \dfrac{1}{2}$

$\dfrac{DE}{KJ} = \dfrac{8}{16} = \dfrac{1}{2}$

20, 16, 8, 6, 10, 12

$\dfrac{EF}{KL} = \dfrac{10}{20} = \dfrac{1}{2}$

yes, SSS~
$\dfrac{DE}{KJ} = \dfrac{DF}{JL} = \dfrac{EF}{KL}$

4. $\triangle MNP$ and $\triangle MRQ$

yes, SAS~

$\dfrac{MN}{MR} = \dfrac{4}{6} = \dfrac{2}{3}$

4, 8, 4, 8, 6, 12

$\angle NMP \cong \angle RMQ$

$\dfrac{MP}{MQ} = \dfrac{8}{12} = \dfrac{2}{3}$

Multi-Step Explain why the triangles are similar and then find each length.

5. AB

A, 6, E, 9, D, C, 15, B, x

$\triangle AED \sim \triangle ACB$ by AA~

$\dfrac{3\cancel{9}}{5\cancel{15}} = \dfrac{6}{x}$

$3x = 30$

$x = 10$

$\boxed{AB = 10}$

6. WY

U, 9, 8.75, X, V, 7, W, x, Y
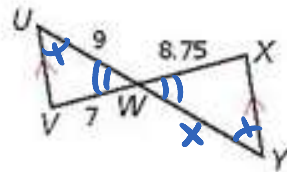
$\triangle UWV \sim \triangle YWX$ by AA~

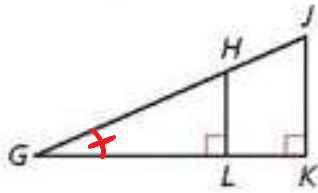$\dfrac{7}{8.75} = \dfrac{9}{x}$

$7x = 78.75$

$x = 11.25$

$\boxed{WY = 11.25}$

PRACTICE AND PROBLEM SOLVING

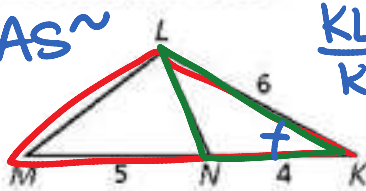**Explain why the triangles are similar and write a similarity statement.**

11.

$\triangle HGL \sim \triangle JGK$ by AA~

12.

$\triangle ABC \sim \triangle DEF$ by SAS~ (or AA~)

Verify that the given triangles are similar.

13. $\triangle KLM$ and $\triangle KNL$

by SAS~

$$\frac{KL}{KN} = \frac{KM}{KL}$$

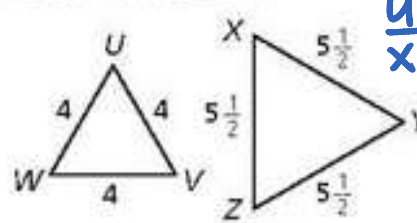$$\frac{6}{4} = \frac{9}{6}$$

$$\frac{3}{2} = \frac{3}{2} \checkmark$$
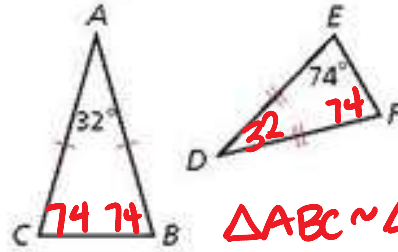
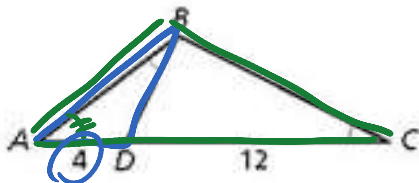**14.** $\triangle UVW$ and $\triangle XYZ$ SSS~

$$\frac{UV}{XY} = \frac{VW}{YZ} = \frac{UW}{XZ}$$

$$\frac{4}{5.5} = \frac{4}{5.5} = \frac{4}{5.5}$$
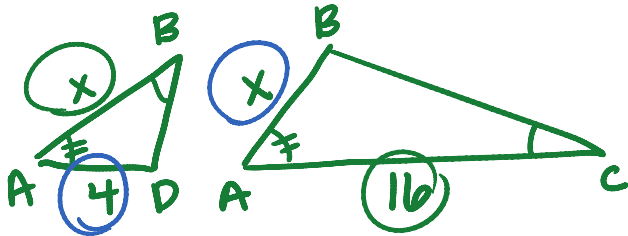
$$\frac{8}{11} = \frac{8}{11} = \frac{8}{11} \checkmark$$

Multi-Step Explain why the triangles are similar and then find each length.

15. AB

$\triangle ABD \sim \triangle ACB$ by AA~

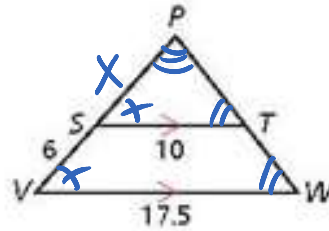$$\frac{x}{16} = \frac{4}{x}$$

$$x^2 = 64$$

$$x = \pm 8$$

$$\boxed{AB = 8}$$

16. PS $\triangle PST \sim \triangle PVW$ by AA~

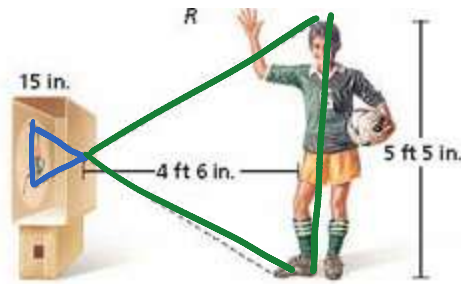$$\frac{x}{10} = \frac{x+6}{17.5}$$

$$17.5x = 10x + 60$$

$$7.5x = 60$$

$$x = 8$$

$$\boxed{PS = 8}$$

19. Photography The picture shows a person taking a pinhole photograph of himself. Light entering the opening reflects his image on the wall, forming similar triangles. What is the height of the image to the nearest tenth of a foot?

15 in.

4 ft 6 in.

5 ft 5 in.

R

$$\frac{15 \text{ in}}{54} = \frac{x}{65}$$

$$54x = 975$$

$$x = \frac{325}{18}$$

$$\approx 18.05 \text{ in}$$

$$\frac{}{12}$$

$$\boxed{\approx 1.5 \text{ ft}}$$

26. Critical Thinking $\triangle ABC$ is not similar to $\triangle DEF$, and $\triangle DEF$ is not similar to $\triangle XYZ$. Could $\triangle ABC$ be similar to $\triangle XYZ$? Why or why not? Make a sketch to support your answer.

Yes, if corr ∠'s are ≅ and corr sides are proportional.

$\triangle ABC \sim \triangle XYZ$

EX:

not ~   not ~