24. The lengths of the corresponding sides of 2 similar right triangles are in the ratio of 2:5. If the hypotenuse of the smaller triangle is 5 inches long, how many inches long is the hypotenuse of the larger triangle?

F. 2
G. 2.5
H. 7
J. 10
K. 12.5

16. In the figure below, $\overline{AD}$ is perpendicular to $\overline{BD}$, $\overline{AC}$ is perpendicular to $\overline{BC}$, and $\overline{AD} \cong \overline{BC}$. Which of the following congruences is NOT necessarily true?

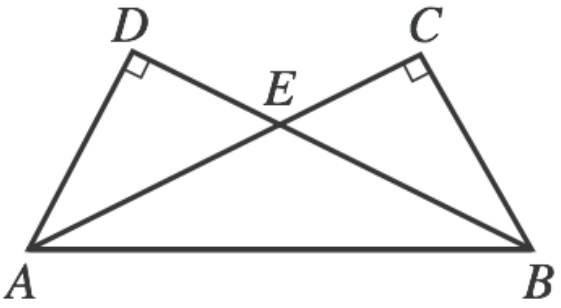
F. $\overline{AC} \cong \overline{BD}$

G. $\overline{AD} \cong \overline{AE}$

H. $\overline{AE} \cong \overline{BE}$

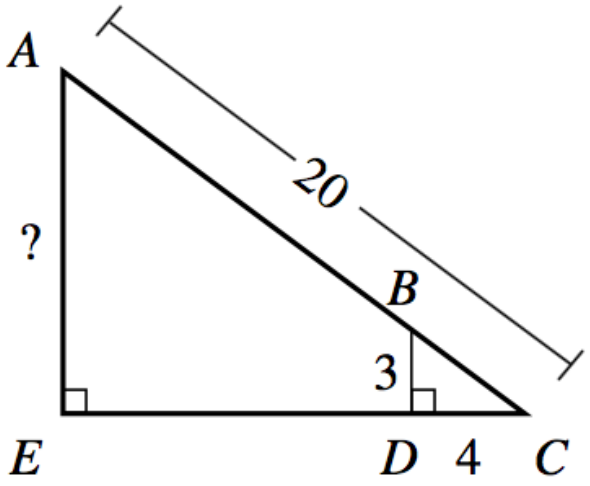
J. $\angle DAB \cong \angle CBA$

K. $\angle EAB \cong \angle EBA$

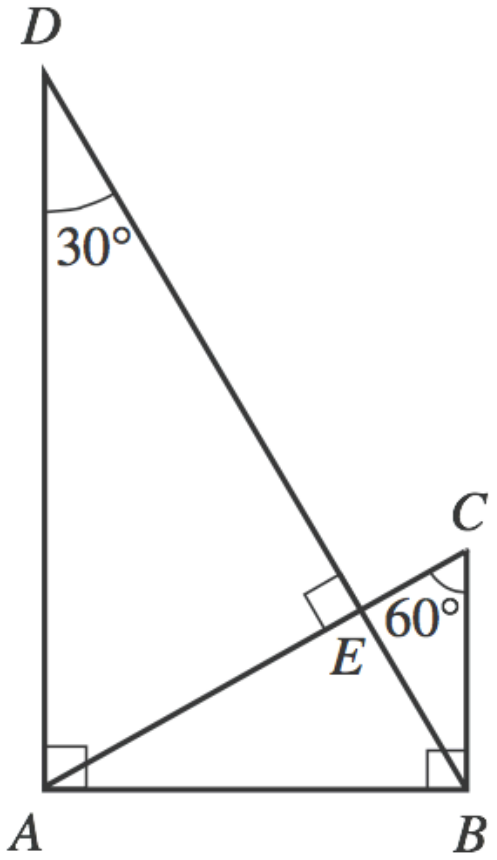


27. In right triangle $\triangle ACE$ below, $\overline{BD}$ is parallel to $\overline{AE}$, and $\overline{BD}$ is perpendicular to $\overline{EC}$ at D. The length of $\overline{AC}$ is 20 feet, the length of $\overline{BD}$ is 3 feet, and the length of $\overline{CD}$ is 4 feet. What is the length, in feet, of $\overline{AE}$?

A. 10
B. 12
C. 15
D. 16
E. 17



44. For the triangles in the figure below, which of the following ratios of side lengths is equivalent to the ratio of the perimeter of $\triangle ABC$ to the perimeter of $\triangle DAB$?

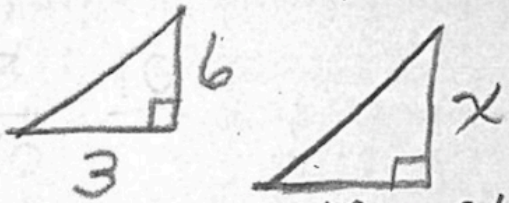


F. *AB*:*AD*
G. *AB*:*BD*
H. *AD*:*BD*
J. *BC*:*AD*
K. *BC*:*BD*

6. The shadows of a fence post and a nearby flagpole (both vertical and on level ground) were measured at the same time. The fence post's shadow was 3 ft long, and the flagpole's shadow was 10 ft long. If the fence post is 6 ft tall, about how many feet tall is the flagpole?

H

F. 5
G. 18
H. 20
J. 22
K. 30



Fence

flagpole

Similar Triangles

Drawing a diagram helps To set up solution

Set up proportion $\frac{6}{3} = \frac{x}{10}$

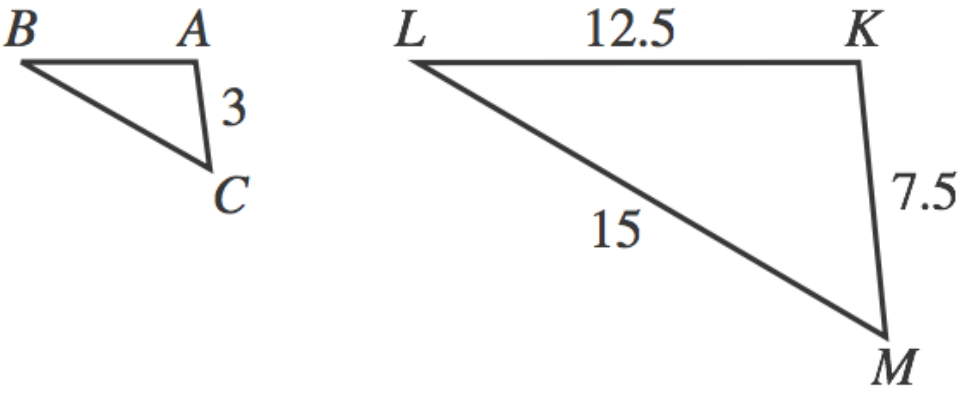
$x = 10 * 6 \div 3 = 20$

32. Television screen sizes are the diagonal length of the rectangular screen. Hector recently changed from watching a television with a 13-inch screen to a television with a similar 19-inch screen. If a boxcar appeared 8 inches long on the 13-inch screen, how long, to the nearest inch, will it appear on the 19-inch screen?

F. 10
G. 12
H. 14
J. 16
K. 18

25. In the figure below, where $\triangle ABC \sim \triangle KLM$, lengths given are in centimeters. What is the perimeter, in centimeters, of $\triangle ABC$?

(Note: The symbol ~ means "is similar to.")



A. 12

B. 14

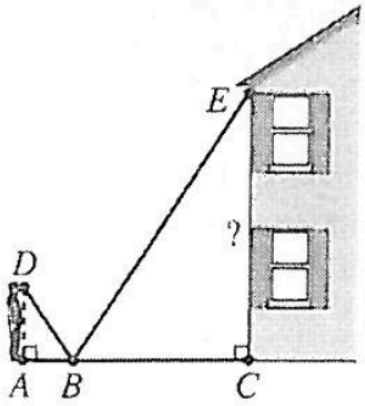
C. $21\frac{1}{2}$

D. 35

E. $71\frac{3}{4}$

20. As shown in the figure below, Mr. Thompson, who is standing at point A, needs to determine the distance from point C on the ground to point E at the top of one of the second-story windows of his house. He places a mirror on the ground at point B so that when he looks in the mirror, he can see the top of the window. Mr. Thompson's eye level, at point D, is 6 ft above the ground. He notes that $AB = 4$ ft and $BC = 14$ ft. Approximately how many feet above the ground is the top of the second-story window?

(Note: In $\triangle ABD$ and $\triangle CBE$, $\angle ABD$ is congruent to $\angle CBE$.)

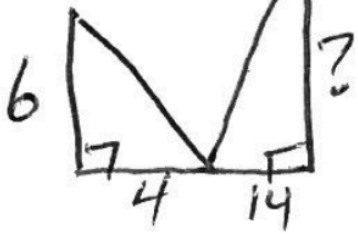


F. 2
G. 10
H. 16
→ J. 21
K. 24

DO YOUR FIGURING HERE.

Similar Triagles ARE Equal in proportion

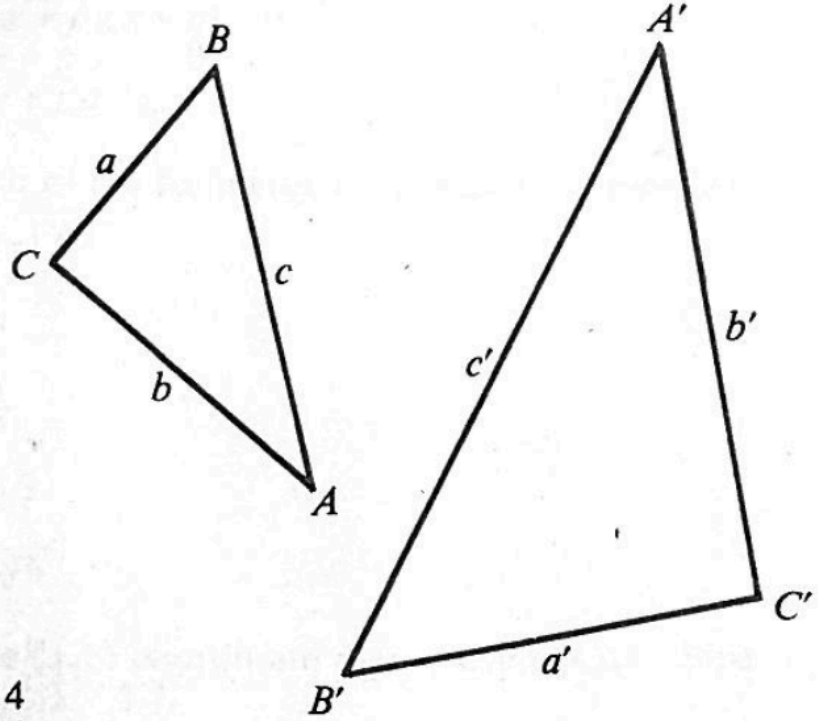
Label diagram with #'s then SET up proportion and solve for ?



$\frac{6}{4} \Rightarrow \frac{3}{2} = \frac{?}{14}$

$? = \frac{14 * 3}{2} = 7 * 3 = 21$

32. The figure below shows 2 triangles, where $\Delta ABC \sim \Delta A'B'C'$. In these similar triangles, $a = 9$, $b = 12$, $c = 15$, and $a' = 15$, with all dimensions given in feet. What is the value of b' ?



F. 14
G. 16
H. 18
→ J. 20
K. 22

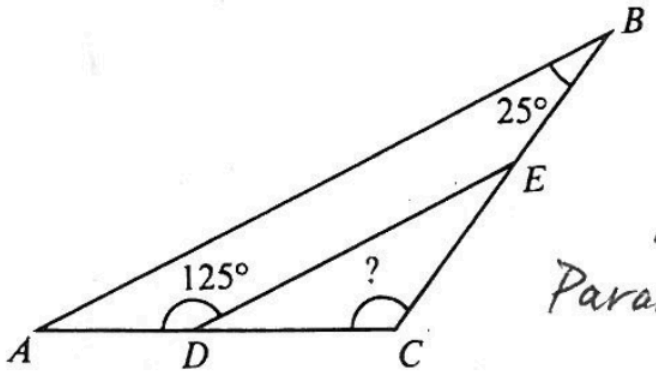
DO YOUR FIGURING HERE.

So Similar means fig
are equal in proportion
Set up Corresponding
Sides in Proportion

$$\frac{a=9}{b=12} = \frac{a'=15}{b'}$$

$$\frac{\overset{5}{\cancel{15}} * \overset{4}{\cancel{12}}}{\cancel{3}\ 1} = b' = 20$$

46. For ΔABC below, D and E are points on the sides of the triangle. If $\overline{AB}$ is parallel to $\overline{DE}$, what is the measure of $\angle ACB$?

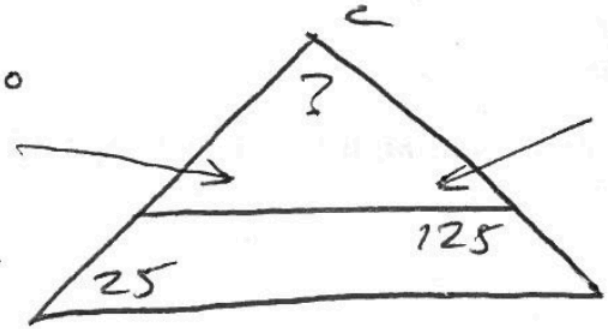


F. 80°
G. 100°
H. 125°
J. 150°
K. 155°

DO YOUR FIGURING HERE.

G

Sometimes, this form is easier to deal with



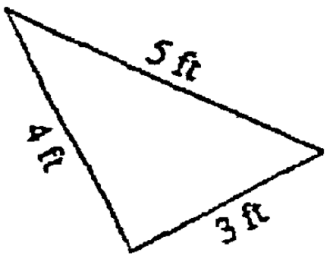
180 − 125
55

Due to Parallel lines

B

$? = 180 - (25^\circ + 55) = 100^\circ$

6. How many triangles that have integer side lengths are similar to the triangle shown below?



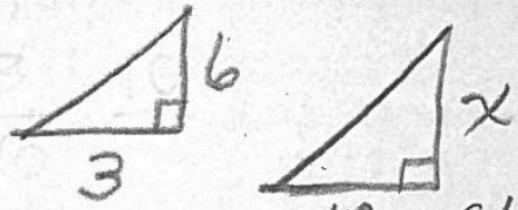
F. 1
G. 2
H. 3
J. 4
K. Infinitely many

E. 168

6. The shadows of a fence post and a nearby flagpole (both vertical and on level ground) were measured at the same time. The fence post's shadow was 3 ft long, and the flagpole's shadow was 10 ft long. If the fence post is 6 ft tall, about how many feet tall is the flagpole?

H

F. 5
G. 18
H. 20
J. 22
K. 30



Similar Triangles
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