1. Carla looks from a height of 15 yards at the top of her apartment building. She lines up the top of a flagpole with the curb of a street 20 yards away. If the flagpole is 12 yards from the apartment building, how tall is the flagpole?

$$\frac{15}{x} = \frac{20}{8}$$

$$x = 6 \text{ yards}$$

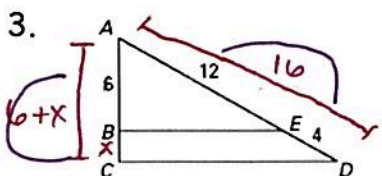- 15 yards
- 12 yards
- 20 yards
- 8
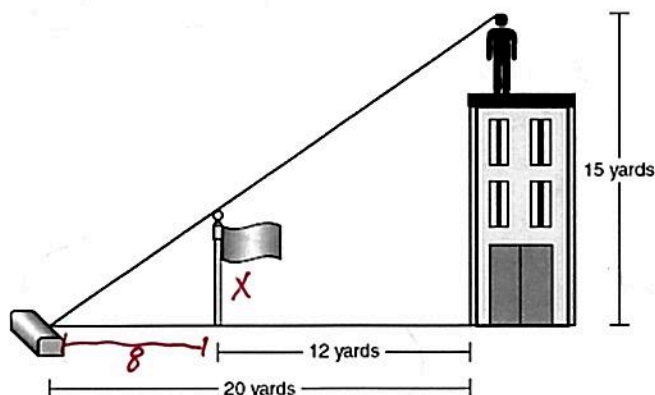
2. Victoria holds a 5 foot long fishing pole. The fishing line extends 3 feet to the water's surface and then another 12.6 feet to a hook. How far is the fish from the hook?

- 5 ft
- 3 ft
- 12.6 ft
- x
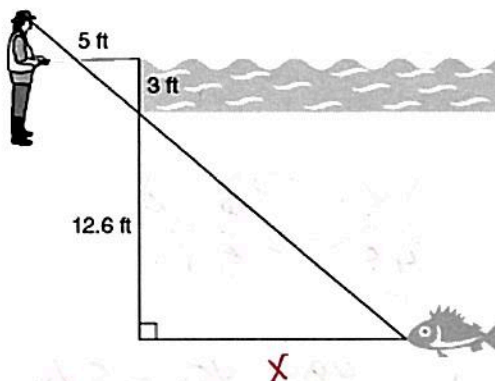
$$\frac{5}{x} = \frac{3}{12.6}$$

$$x = 21 \text{ ft}$$

#3-4, Given $^{\Delta}ABE \sim {^{\Delta}}ACD$, find BC.

3.

$$\frac{6}{6+x} = \frac{12}{16}$$

$$96 = 72 + 12x$$

$$x = 2$$

$$\frac{6}{x} = \frac{12}{4}$$
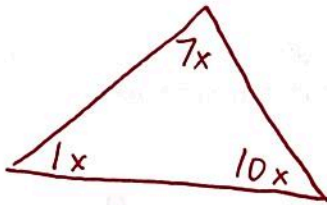
$$x = 2$$

4.

$$\frac{12}{x} = \frac{18}{15}$$

$$x = 10$$
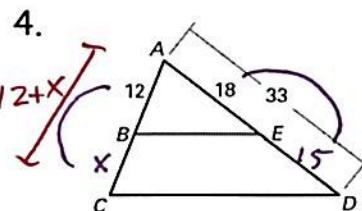
$$\frac{12}{12+x} = \frac{18}{33}$$

$$396 = 216 + 18x$$

$$x = 10$$

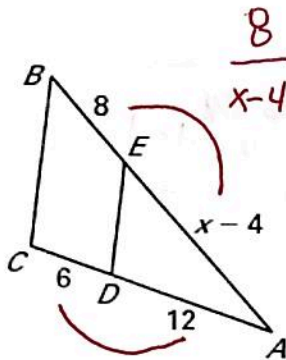5.   The ratio of angles in a triangle is 1:7:10. Find the measure of each angle.

$1x + 7x + 10x = 180$

$18x = 180$

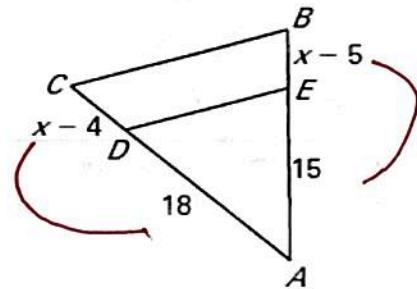$x = 10 \rightarrow \boxed{10°, 70°, 100°}$

6. Find the value of x.   7. Find the value of x.

$\dfrac{8}{x-4} = \dfrac{6}{12}$
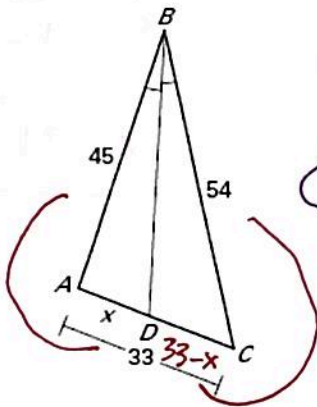
$96 = 6x - 24$

$120 = 6x$

$\boxed{x = 20}$

$\dfrac{x-4}{18} = \dfrac{x-5}{15}$

$15x - 60 = 18x - 90$
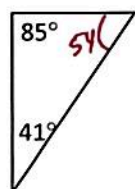
$30 = 3x$

$\boxed{x = 10}$

8. Find the value of x.

$\dfrac{x}{45} = \dfrac{33-x}{54}$
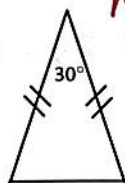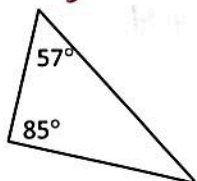
$1485 - 45x = 54x$
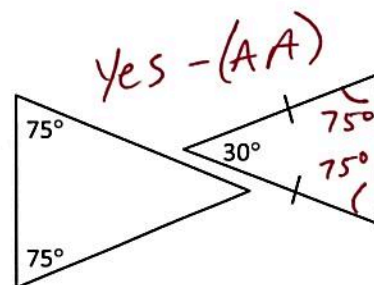
$1485 = 99x$

$\boxed{x = 15}$

9. Decide whether the triangles shown are *similar*, *not similar*, or *cannot be determined* from the given information. If they can be determined to be similar, state by which postulate or theorem.
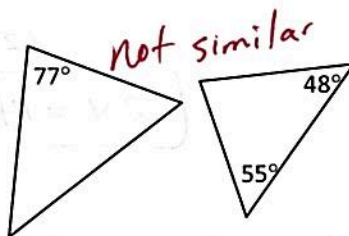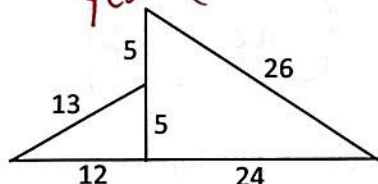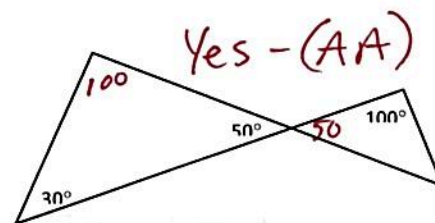
Not similar

85° 54° / 57° / 41° / 85°
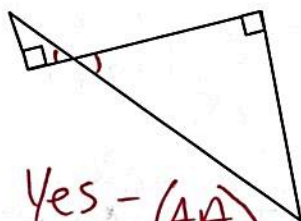
not similar

30° / 70°

Yes - (AA)

75° / 30° / 75° / 75° / 75°

Yes - (SSS)

5 / 26 / 13 / 5 / 12 / 24

not similar

77° / 48° / 55°

Yes - (AA)

100° / 50° / 50 / 100° / 30°

Yes - (AA)
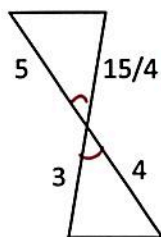
Yes - (SAS)

5 / 15/4 = 3.75 / 3 / 4

$$\frac{3.75}{3} = \frac{5}{4} \checkmark$$

not similar

8 / 5 / 10 / 4
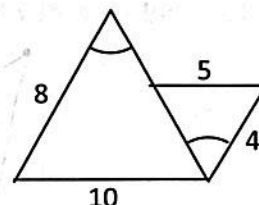
10. Find the value of ZY and SQ given then ZY is a midsegment.
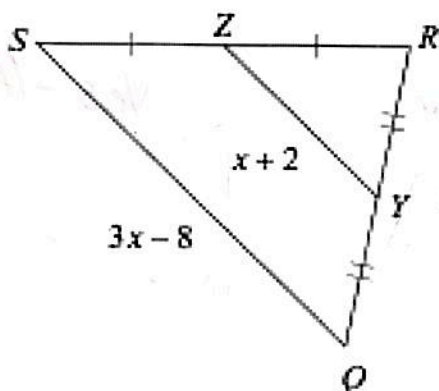
$3x - 8 = 2(x+2)$

$3x - 8 = 2x + 4$
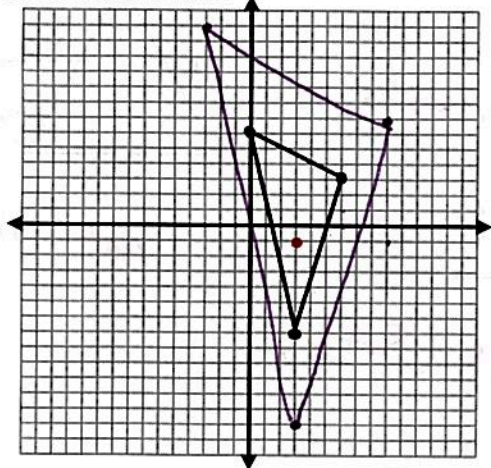
$x = 12$

$ZY = x + 2$

$12 + 2$

$\boxed{ZY = 14}$

$SQ = 3x - 8$

$3(12) - 8$

$\boxed{SQ = 28}$

11-12. For questions #1-2, draw the image of each under the following dilation centered at (3, -1).

11. Scale factor of 2

12. Scale factor of 1/2