Name _____Answers_____

Indirect Measurement Worksheet

Set up a proportion and solve for x. Show all work!!!!

1.

x
2.5 m   mirror 1.5 m
1.9 m
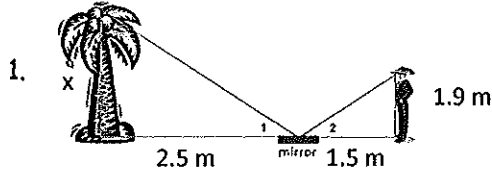
$$\frac{Tree}{Man} = \frac{x}{1.9} = \frac{2.5}{1.5}$$

$$\frac{1.5x}{1.5} = \frac{4.75}{1.5}$$

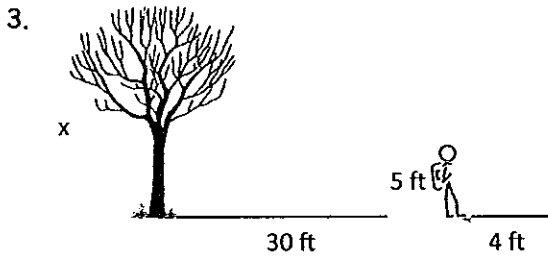$$\boxed{x = 3.17 \text{ m}}$$

2.

5 ft.
8 ft. M   24 ft.
x
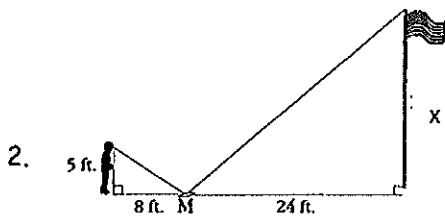
$$\frac{flag}{man} = \frac{x}{5} = \frac{24}{8}$$

$$\frac{8x}{8} = \frac{120}{8}$$

$$\boxed{x = 15 \text{ ft.}}$$

Set up a proportion and solve for x. Show all work!!!

3.

x
30 ft   5 ft   4 ft

$$\frac{Tree}{man} = \frac{x}{5} = \frac{30}{4}$$

$$\frac{4x}{4} = \frac{150}{4}$$

$$\boxed{x = 37.5 \text{ ft.}}$$

4.

x
90 in   54 in   36 in
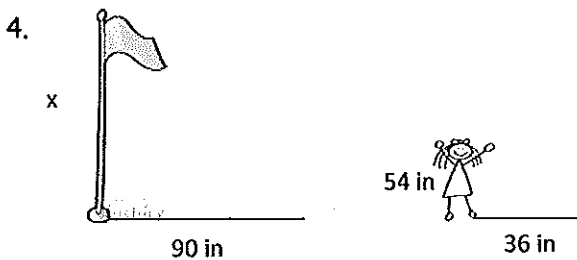
$$\frac{flag}{girl} \quad \frac{x}{54} = \frac{90}{36}$$

$$\frac{36x}{36} = \frac{4860}{36}$$

$$\boxed{x = 135"}$$

5.

5 in, 8 in square; 6 ft (72 in) rectangle, x

$$\frac{sm}{large} = \frac{8}{x} = \frac{5}{72}$$

$$\frac{5x}{5} = \frac{576}{5}$$

$$\boxed{x = 115.2 \text{ in.}}$$

6.

x, cactus, 7 ft; 59 in animal, 4 ft
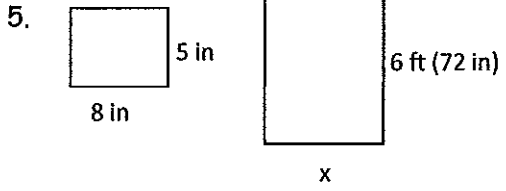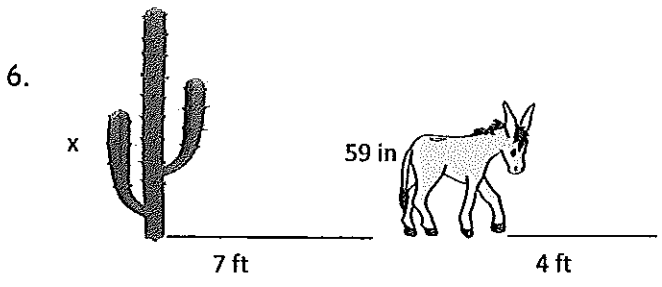
$$\frac{cactus}{animal} \quad \frac{x}{59} = \frac{7}{4}$$

$$\frac{4x}{4} = \frac{413}{4}$$

$$x = 103.25 \text{ ft}$$

✳✳✳✳ —Challenge

7.

30 + x

50

30

40
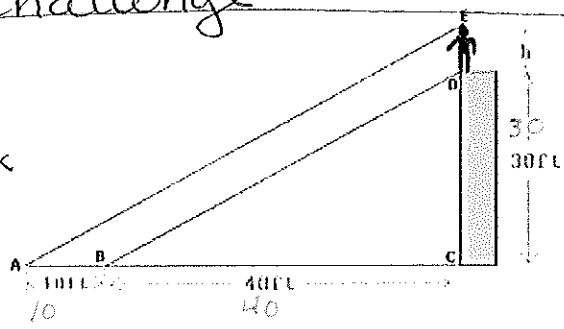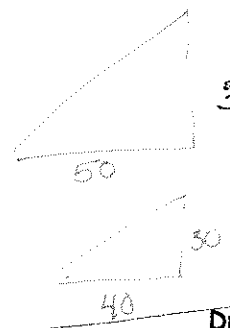
$$\frac{larg}{small} = \frac{30+x}{30} = \frac{50}{40}$$
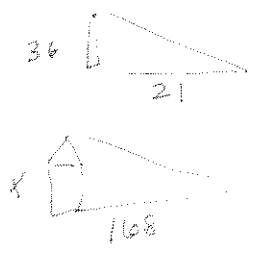
$$1500 = 1200 + 40x$$
$$-1200$$
$$300 = 40x$$
$$\boxed{x = 7.5 \text{ ft}}$$

Draw a picture.   Set up a proportion.   Solve using cross products.

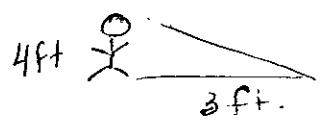**8.** On a sunny day, if a 36-inch yardstick casts a 21-inch shadow, how tall is a building whose shadow is 168ft?

36, 21

x, 168

$$\text{stick} \quad \frac{36}{x} = \frac{21}{168}$$
$$\text{Bldg}$$

$$\frac{1}{21} = \frac{6048}{21}$$

$$x = \boxed{\begin{array}{c} 288 \text{ in.} \\ \text{or } 96 \text{ ft.} \end{array}}$$

9. A 4-ft person standing near a telephone pole has a shadow 3-ft long. At the same time, the telephone pole has a shadow of 18-ft long. What is the height of the telephone pole?

4ft, 3 ft.

pole, 18ft.

$$\frac{person}{pole} \quad \frac{4}{x} = \frac{3}{18}$$

$$\frac{3x}{3} = \frac{72}{3} \quad \boxed{x = 24 \text{ ft.}}$$