# Homework Check:

**5.** 11.57

**6.** 30.86

**7.** 62.08

**8.** $\frac{s}{t}$

$\frac{r}{t}$

$\frac{s}{r}$

**10.** $\frac{7}{25}$

$\frac{24}{25}$

$\frac{7}{24}$

$\frac{24}{25}$

$\frac{7}{25}$

$\frac{24}{7}$

**11.** 30°

**12.** 53°

**13.** 30°

**14.** 24°

**15.** $a \approx 35$ cm

**16.** $b \approx 15$ cm

**17.** $c \approx 105$ yd

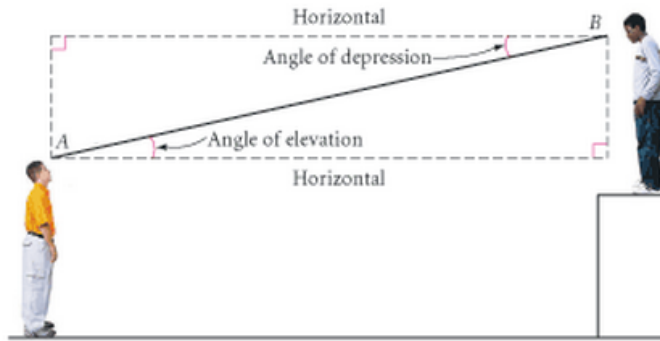**18.** $d \approx 40°$

**19.** $e \approx 50$ cm

**20.** $f \approx 33°$

**21.** $g \approx 18$ in.

**22.** approximately 237 m

**23.** $x \approx 121$ ft

# 12.2 - Problem Solving with Right Triangles

Horizontal

B

Angle of depression

A

Angle of elevation

Horizontal

If you look up, you measure the **angle of elevation.** If you look down, you measure the **angle of depression.**

---

The angle of elevation from a sailboat to the top of a 121-foot lighthouse on the shore measures 16°. How far is the sailboat from the lighthouse?



121 ft

16°

d

$$Tan\ 16 = \frac{121}{X}$$

$$X\ Tan\ 16 = 121$$

$$X = \frac{121}{Tan\ 16}$$
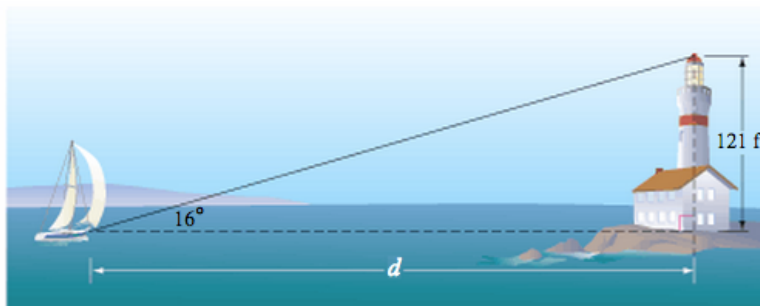
$$X = 422\ ft$$

From the top of a 35 meter cliff, Lori spots a hiker on the ground at an angle of depression of 62°. How far is Lori from the hiker?
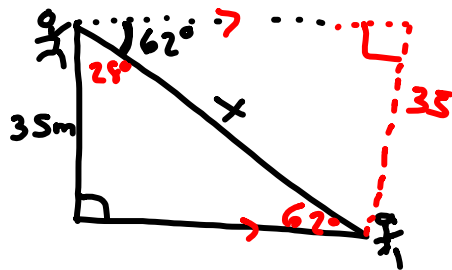
$$\cos 28 = \frac{35}{x}$$

$$\sin 62 = \frac{35}{x}$$

$$39.6 \text{ meters}$$

---

Area = 88 cm²

$x \approx$ _____

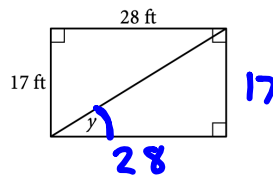$$A = \frac{1}{2}bh$$
$$88 = \frac{1}{2}(16)h$$
$$88 = 8h$$
$$h = 11$$
$$\tan x = \frac{11}{8}$$
$$\tan^{-1}\left(\frac{11}{8}\right)$$
$$\boxed{54°}$$

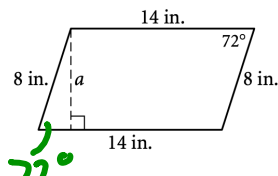$y \approx$ _____

28 ft, 17 ft, 17, 28

$$\tan y = \frac{17}{28}$$
$$\tan^{-1}\left(\frac{17}{28}\right)$$
$$31°$$

$a \approx$ _____

14 in., 72°, 8 in., 8 in., 14 in., 72°

$$\sin 72 = \frac{a}{8}$$
$$8 \cdot \sin 72 = a$$
$$7.6 \text{ in}$$

Homework