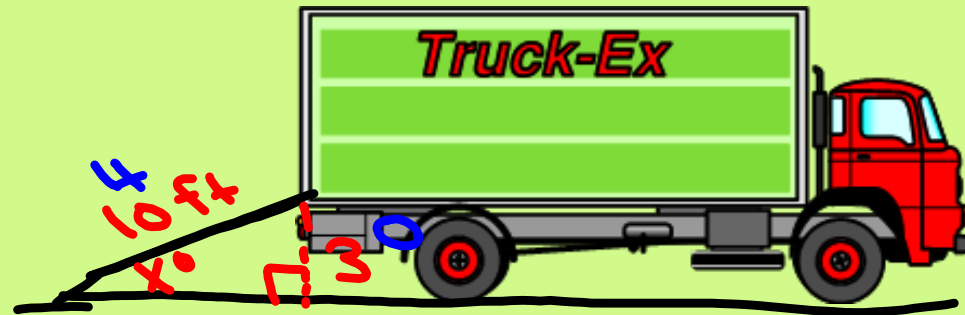


2/11/20 - Warm Up Problem

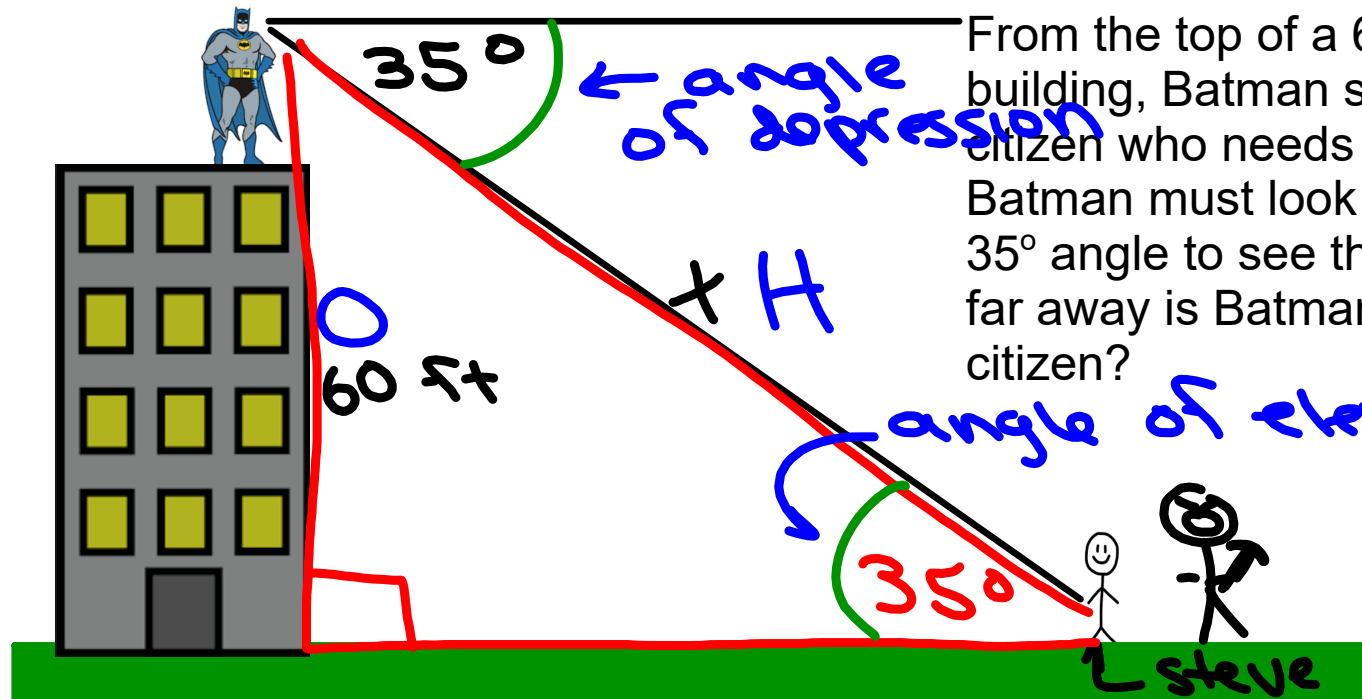
The ramp into the back of a moving truck is 10 ft long.
The back door of the truck is 3 feet off the ground.
What angle does the ramp make with the ground?

SOH CAH TOA

$$\sin(x) = 3/10$$
$$x = 17.4$$



Section 8.4 - Angles of Elevation and Depression



From the top of a 60 ft apartment building, Batman spots a helpless citizen who needs saving.

Batman must look downward at a 35° angle to see the citizen. How far away is Batman from the citizen?

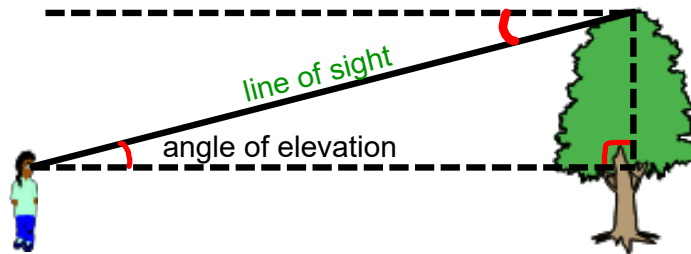
$$\sin(35) = \frac{60}{x}$$

$$\frac{60}{\sin(35)} = \frac{\sin(35) \cdot x}{\cancel{\sin(35)}}$$

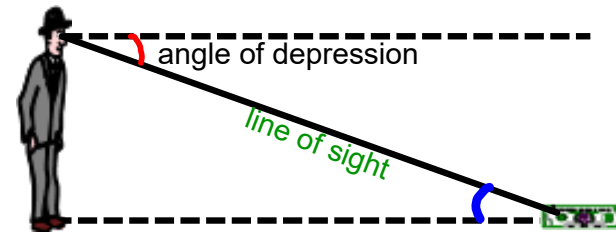
$$104.6 \text{ ft} = x$$

ANGLE OF ELEVATION:

the angle you must look up at to see something above your line of sight

**ANGLE OF DEPRESSION:**

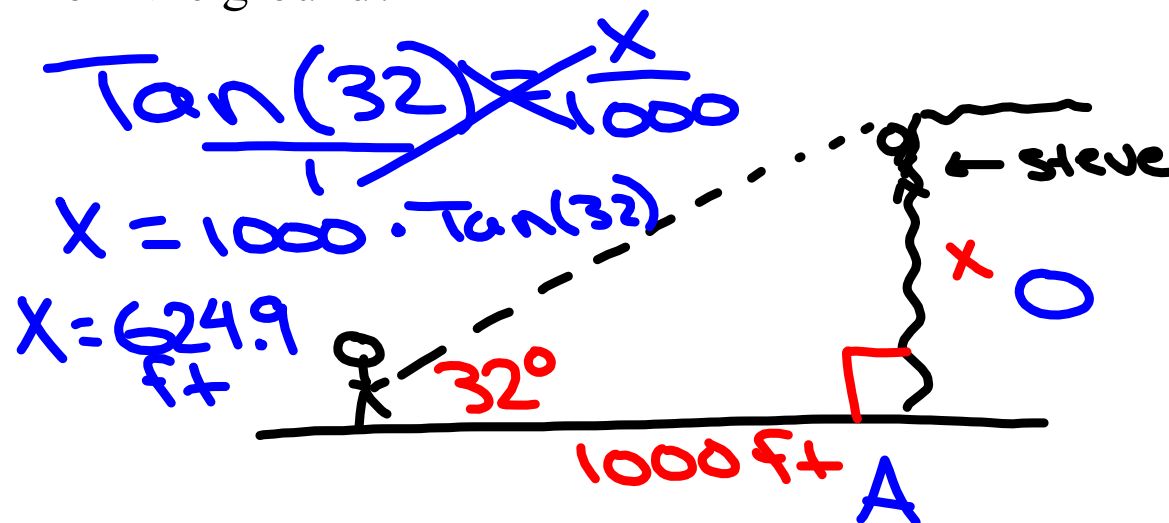
the angle you must look downward to see something below your line of sight



THE ANGLES OF ELEVATION AND DEPRESSION ARE CONGRUENT!

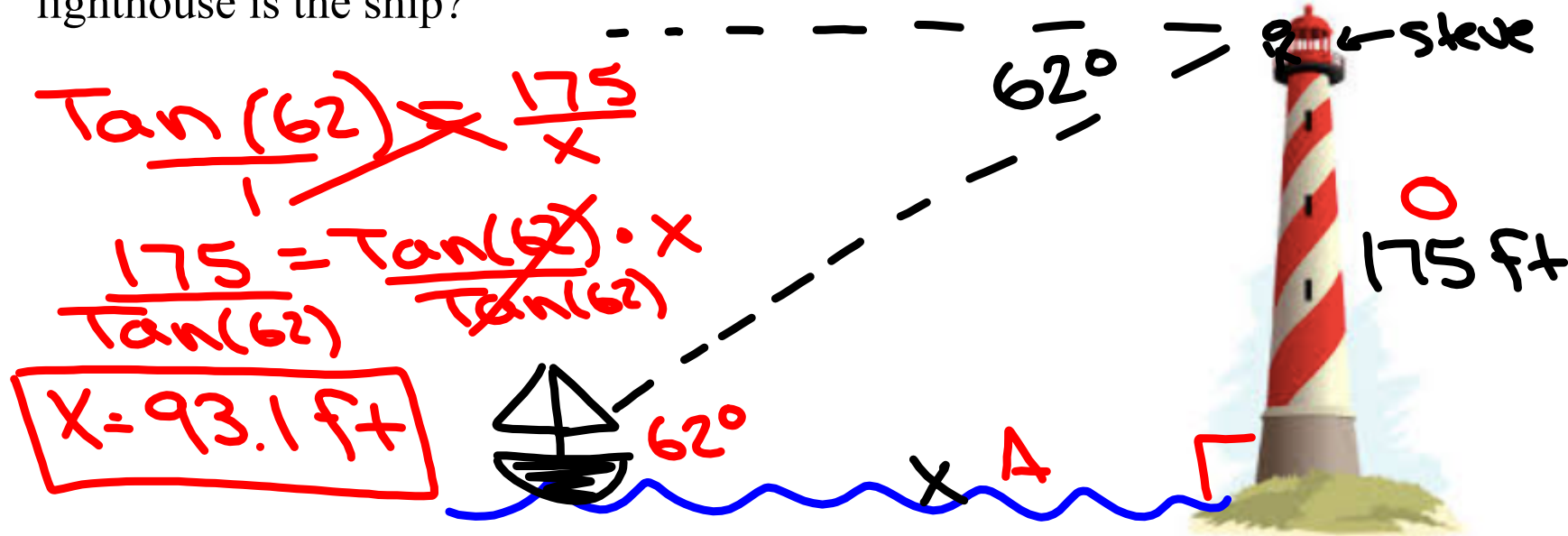
EXAMPLE #1

You sight a rock climber on a cliff at a 32° angle of elevation. You are 1000 ft from the base of the cliff. What is the approximate height of the rock climber from the ground?



EXAMPLE #2

You are standing at the top of a lighthouse 175 ft above the ground. You spot a ship on the water at a 62° angle of depression. How far from the base of the lighthouse is the ship?



Assignment:

Concept 20 Worksheet

(26-30) - due Thursday 2/13

USING ANGLES OF ELEVATION AND ANGLES OF DEPRESSION

Draw and label a diagram for each problem, then answer the question posed. Round your answers to the nearest tenth.

26. From a point on the ground 12 ft from the base of a flag pole, the angle of elevation to the top of the pole measures 53 degrees. How tall is the pole?

27. You are flying a kite with 20 feet of string extended. The angle of elevation from the spool of string to the kite is 41 degrees. About how far off of the ground is your kite?

28. From the top of a vertical cliff that is 40 meters high, the angle of depression to an object level with the base of the cliff is 34 degrees. How far from the base of the cliff is the object?

29. From the top of a 120-foot high tower, an air traffic controller observes an airplane on the runway at an angle of depression of 19 degrees. How far from the base of the tower is the airplane?

30. A person is standing on the runway of an airport 100 feet from the control tower. That person observes an air traffic controller at the window of the 132-foot tower. What is the angle of elevation from the person on the runway to the air traffic controller?

