## Geometry <br> Lesson: Tuesday, April 7th

## Learning Target: <br> Students will find the angle of elevation and depression.

## Bell Ringer:

Find the angle measure.

$$
\text { 1. } \mathrm{x}=
$$



## Bell Ringer Answer: Approximately 73.50 degrees!

## Let's Get Started: <br> Watch Video: Finding the angle of elevation and depression

After you complete video, move on to the practice problems provided.

## Practice: Try the following problems shown below. Then, use the provided answer to check your work.

1.) The surface of a ramp is 475 m long. It rises a vertical distance of 28 m . Find the measure of the angle of elevation.
2.) Suppose a tree 50 feet in height casts a shadow of length 60 feet. What is the angle of elevation from the end of the shadow to the top of the tree with respect to the ground?
3.) An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to the airport is 5 miles. What is the angle of depression from the airplane to the airport?
4.) A person stands at the window of a building so that his eyes are 12.6 m above the level ground in the vicinity of the building. An object is 58.5 m away from the building on a line directly beneath the person. Compute the angle of depression of the person's line of sight to the object on the ground.

Answer Key:
Once you have completed the problems, check your answers here.


$$
\begin{aligned}
& \sin x=\frac{28}{475} \\
& x=\sin ^{-1}\left(\frac{20}{475}\right) \\
& x \approx 3.38^{\circ}
\end{aligned}
$$

2) 



$$
\tan x=\frac{50}{60}
$$

$$
x=\tan ^{-1}\left(\frac{50}{60}\right)
$$

$$
x \approx 39.81^{\circ}
$$

3) 



$$
\tan x=\frac{2}{5}
$$

4) 



$$
x=\tan ^{-1}\left(\frac{2}{5}\right)
$$

$$
\tan x=\frac{12.6}{58.5}
$$

$$
x \approx 21.80^{\circ}
$$

$$
x \approx 12.15^{\circ}
$$

## Additional Resources:

Click on the link below to get additional practice and to check your understanding!

## Trig Word Problems: Angle of Elevation and Depression

