5.04 Applying Trigonometric Ratios

*Remember to only use the EOC calculator →the displayed mode should be *DEG*	https://desmosforassessment.cambiumtds.com/TDSCalculator.html?mode=tds_dc_scirestricted

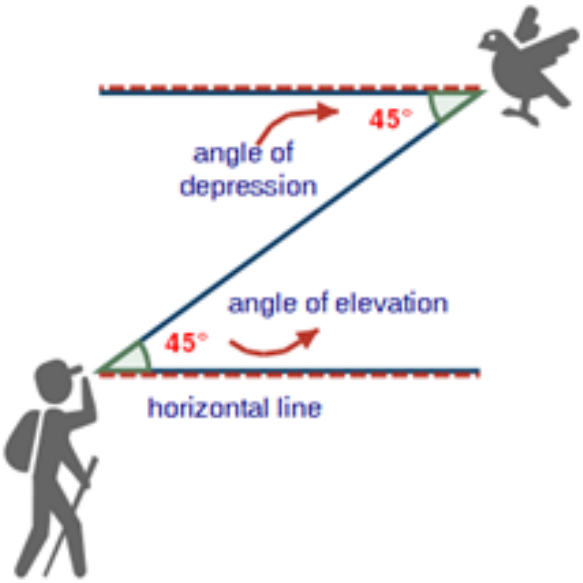
Review Video **Click Here**		
$sin\,\theta = \frac{opposite}{hypotenuse}$	$cos\,\theta = \frac{adjacent}{hypotenuse}$	$tan\,\theta = \frac{opposite}{adjacent}$

Angles of Elevation and Depression Video **Click Here**

Angle of elevation- the angle at which an observer must direct his or her line of sight in an _____ motion to view an object.

Angle of depression- the angle at which an observer must direct his or her line of sight in a _____ motion to view an object.

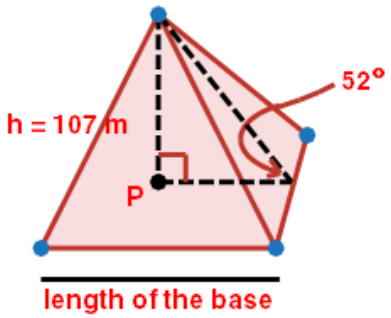
Note: The angle of elevation and the angle of depression are _____. The reason they are congruent is because they are _____ _____ angles.



Practice

Question 1 Video **Click Here**

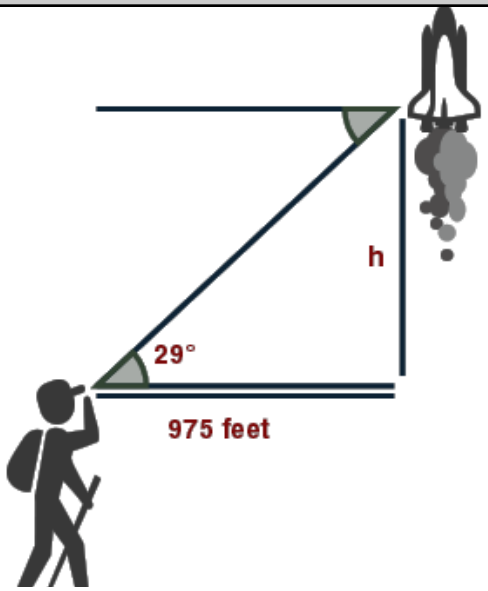
Find the length of the base of the following pyramid, given the height of the pyramid is 107 meters and the angle of elevation of the base of the pyramid is 52°. Round to the nearest whole number.



Question 2 Video Part A and Part B

A person is observing a rocket launch at the space center. The angle of elevation from the observer to the rocket is measured at 29° before the rocket travels out of sight. The distance from the observer to the launch pad is 975 feet.

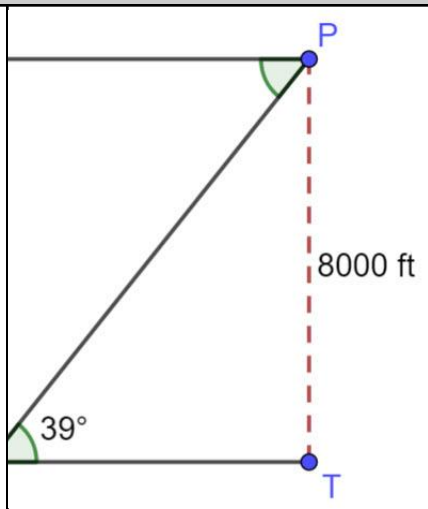
Part A: What is the height of the rocket right before the observer loses visual contact?



Part B: Use the angle of depression to find the distance in feet from the eye of the observer to the rocket.

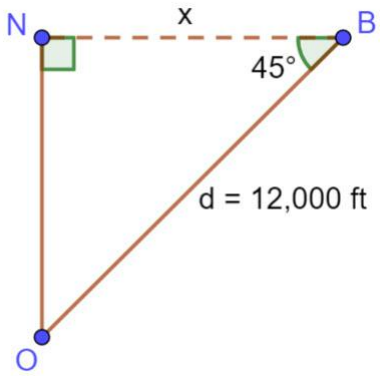
Question 3 Video Click Here

An observer (O) spots a plane (P) taking off from a local airport and flying at a 39° angle horizontal to her line of sight and located directly above a tower (T). The observer also notices a bird (B) circling directly above her. If the distance from the plane (P) to the tower (T) is 8,000 ft., how far is the bird (B) from the plane (P)? Round to the nearest whole number.



Question 4 Video **Click Here**

An observer (O) spots a bird flying at a 45° angle from a line drawn horizontal to its nest. If the distance from the observer (O) to the bird (B) is 12,000 ft., how far is the bird (B) from its nest (N)? Round to the nearest whole number.



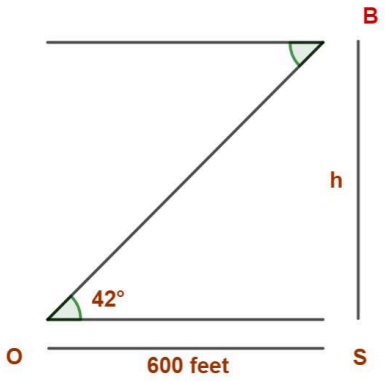
Question 5 Video **Click Here**

Jamie is flying a kite. The angle of elevation formed by the kite string and the ground is 38°, and the kite string forms a straight segment that is 100 feet long.

Find the distance between the ground and the kite. Explain fully including a description of the triangle you drew to help you solve.

Question 6 Video **Click Here**

An observer (O) is located 600 feet from a school (S). The observer notices a bird (B) flying at a 42° angle of elevation from his line of sight. How high is the bird flying over the school? You must show all work and calculations to receive full credit.



Question 7 Video **Click Here**

A ladder leaning against a wall makes an angle of elevation of 75° with the ground. If the foot of the ladder is 6 feet from the base of the wall, what is the length of the ladder?

Round your answer to the nearest tenth.

Question 8 Video **Click Here**

A fire hydrant sits 72 feet from the base of a 125 foot tall building. Find the angle of elevation from the fire hydrant to the top of the building.

Round your answer to the nearest degree.

EXTRA PRACTICE for 5.04