

## INVERSE TRIGONOMETRY: GUIDED NOTES

### Inverse Trig Functions

$$\sin(\theta) = k \Rightarrow \theta = \sin^{-1}(k) \quad \text{The angle is the *inverse sine* of } k.$$

$$\cos(\theta) = k \Rightarrow \theta = \cos^{-1}(k) \quad \text{The angle is the *inverse cosine* of } k.$$

$$\tan(\theta) = k \Rightarrow \theta = \tan^{-1}(k) \quad \text{The angle is the *inverse tangent* of } k.$$

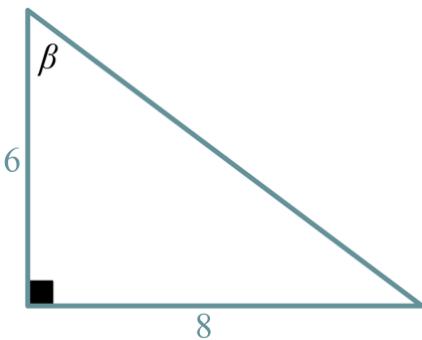
\* $k$  is the ratio of the measurements from the right triangle, and  $\theta$  is the acute angle measure.

### Notation

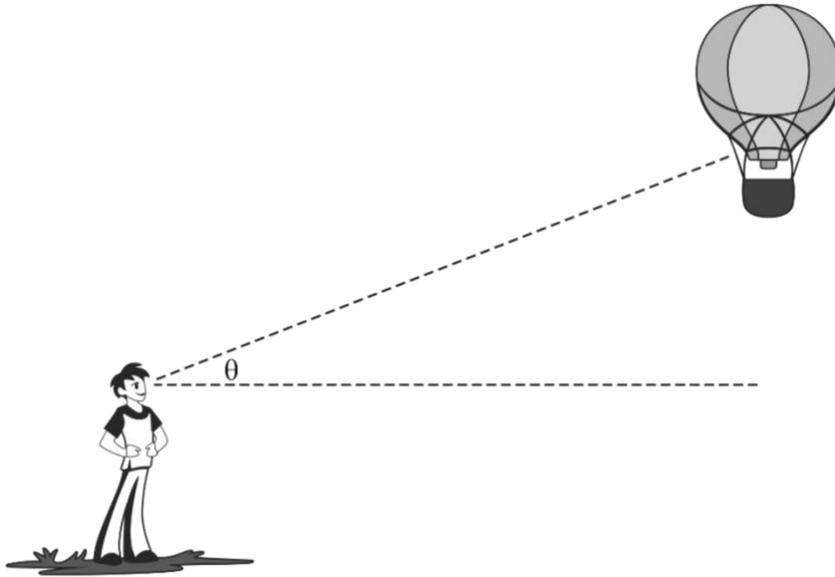
$\sin^{-1}(k) \neq \frac{1}{\sin(k)}$  unlike  $2^{-1} = \frac{1}{2}$ , which is why  $\arcsin(k)$  is often used instead.

↑ not an exponent      ↑ exponent

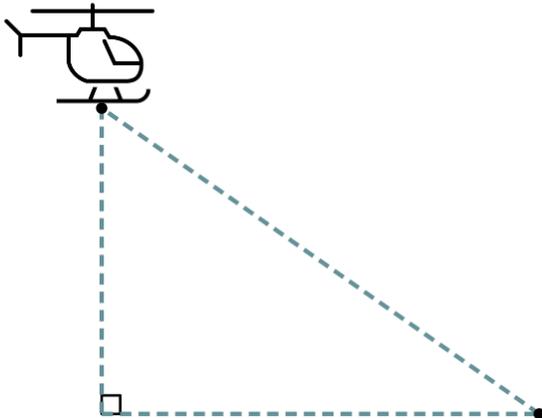
### Examples



- 1) Find  $\beta$  (beta) using two different inverse trigonometric functions.



The angle of elevation is the angle you would need to lift your head to see something above you.



2) Imagine you are watching a helicopter land. The helicopter is 70 feet directly above the landing pad, and the landing pad is 100 feet away from you. What is the angle of elevation?