Basic Right Triangle Trigonometry Review
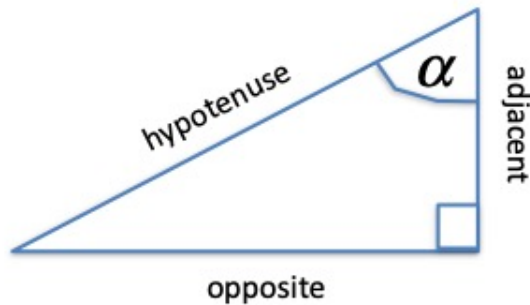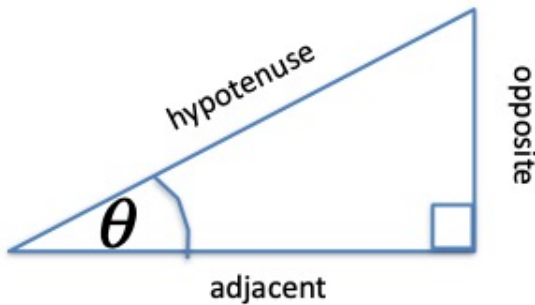
Vocabulary

$$Sine = \frac{opposite}{hypotenuse} \qquad Cosine = \frac{adjacent}{hypotenuse} \qquad Tangent = \frac{opposite}{adjacent}$$

$$\theta \rightarrow \text{Theta} \qquad \alpha \rightarrow \text{Alpha} \qquad \beta \rightarrow \text{Beta}$$

hypotenuse

opposite

θ

adjacent

hypotenuse

adjacent

α

opposite

Prerequisite Skills with Practice

Calculator Exercise

sin 48°
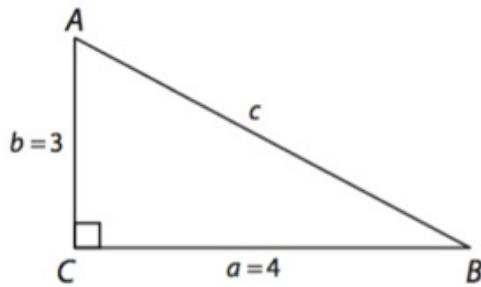
cos 70°

tan 23°

Pythagorean Theorem

C

$$A^2 + B^2 = C^2$$

A

B
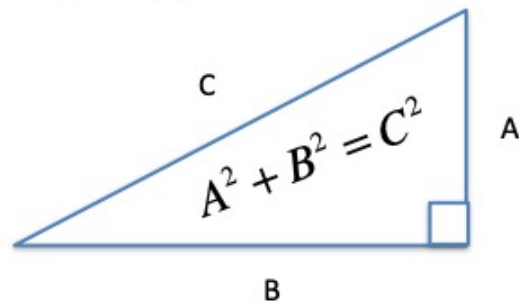
SEE VIDEO ON PlottsMath FOR EXTRA EXAMPLES!!

Find the sine, cosine, and tangent ratios for $\angle A$ and $\angle B$ in ABC . Convert the ratios to decimal equivalents.
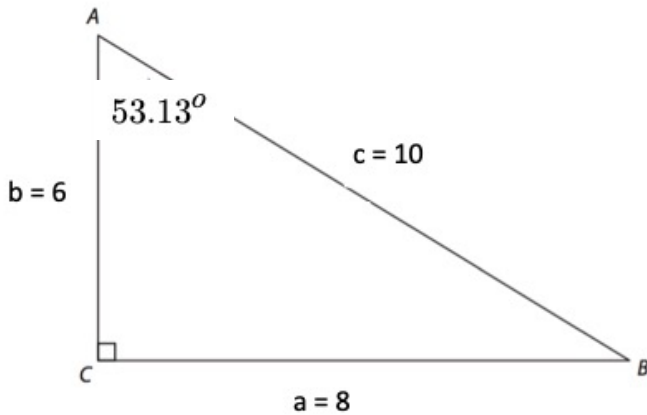
A

c

$b = 3$

C $a = 4$ B

$\text{Sin } A =$

$\text{Cos } A =$

$\text{Tan } A =$

$\text{Sin } B =$

$\text{Cos } B =$

$\text{Tan } B =$

Using Trigonometric Ratios to Find Sides

Given the triangle below, set up the three trigonometric ratios of sine, cosine, and tangent for the angle given. Compare these ratios to the trigonometric functions using your calculator.

A

53.13^o

$c = 10$

$b = 6$

C

$a = 8$

B

$\text{Sin } A =$

$\text{Cos } A =$

$\text{Tan } A =$

$\text{Sin } B =$

$\text{Cos } B =$

$\text{Tan } B =$

$\sin\left(53.13^o\right) =$

$\cos\left(53.13^o\right) =$

$\tan\left(53.13^o\right) =$

$\sin\left(\quad\right) =$

$\cos\left(\quad\right) =$

$\tan\left(\quad\right) =$
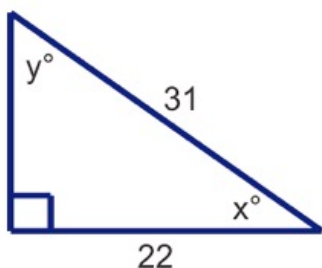
a

b

$22°$

30

6 y

$30°$

x

How do I find unknown angles
of right triangles using trig?

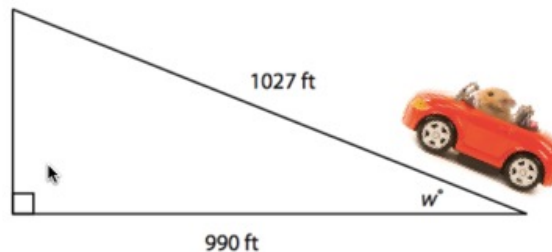$$\sin(\theta) = \frac{A}{C} \implies \theta = \sin^{-1}\left(\frac{A}{C}\right)$$

$$\cos(\theta) = \frac{B}{C} \implies \theta = \cos^{-1}\left(\frac{B}{C}\right)$$

$$\tan(\theta) = \frac{A}{B} \implies \theta = \tan^{-1}\left(\frac{A}{B}\right)$$

A hamster drives 1,027 feet up a hill that has a constant slope. When the hamster reaches the top of the hill, he has traveled a horizontal distance of 990 feet. At what angle did the hamster drive to reach the top? Round your answer to the nearest degree.
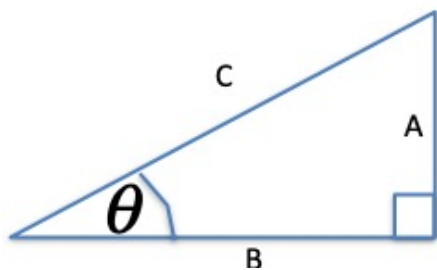
Find the degree measures of "x"and "y"

1027 ft

990 ft

Completing a Triangle

Solve the right triangle below. Round sides to the nearest thousandth.