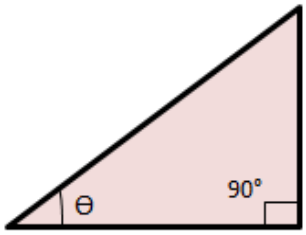
Name: _____ Period: _____ Date: _____

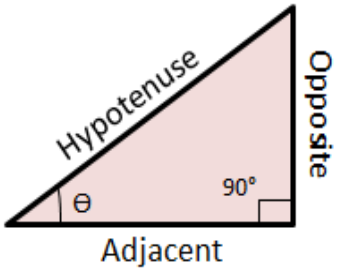
Trigonometry Guide Notes

A **Right-angled triangle (named as right triangle)** is a triangle which has one of its angles equal to 90 degrees.



There are properties associated with a right triangle.

- A **hypotenuse** is the line segment opposite to the right-angle.
- An **opposite** is the line segment opposite to the angle θ.
- An **adjacent** is the line segment next to the angle θ.

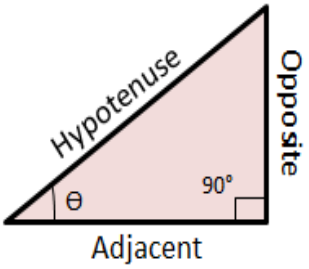


Trigonometric Ratios

There are three basic trigonometric ratios:

1. Sine

$$sin(\theta) = \frac{opposite}{hypotenuse}$$



2. Cosine

$$cos(\theta) = \frac{adjacent}{hypotenuse}$$

3. Tangent

$$tan(\theta) = \frac{opposite}{adjacent}$$

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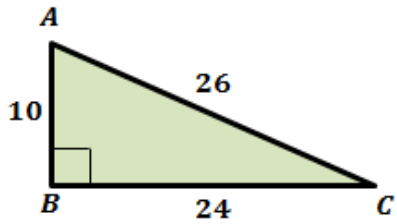
Trigonometry Guide Notes

Problem 1: Write the trigonometric ratios $\sin(C)$, $\cos(C)$ and $tan(C)$ for the triangle shown.

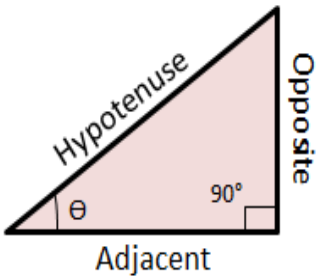


Reciprocal Trigonometric Ratios

Each of the three trigonometric ratios has a reciprocal ratio:

1. Cosecant

$$cosec(\theta) = \frac{hypotenuse}{opposite} = \frac{1}{sin(\theta)}$$



2. Secant

$$sec(\theta) = \frac{hypotenuse}{adjacent} = \frac{1}{cos(\theta)}$$

3. Cotangent

$$cot(\theta) = \frac{adjacent}{opposite} = \frac{1}{cot(\theta)}$$

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Trigonometry Guide Notes

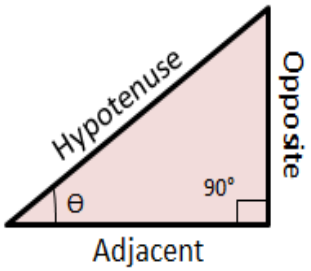
Inverse of Trigonometric Ratios

The inverse of a trigonometric ratio can be used to find the unknown angles in a right triangle.

$$\theta = sin^{-1}\left(\frac{opposite}{hypotenuse}\right)$$

$$\theta = cos^{-1}\left(\frac{adjacent}{hypotenuse}\right)$$

$$\theta = tan^{-1}\left(\frac{opposite}{adjacent}\right)$$



Problem 2: Find the value of x. Round to the nearest degree.