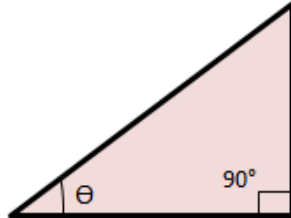# Right Angle Trigonometry Guided Notes
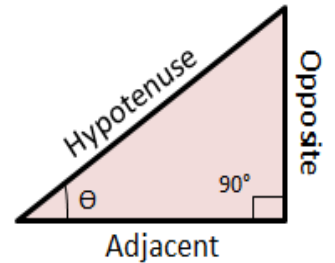
Right Triangle Trigonometry

Right angle trigonometry is the trigonometry of a right-angled triangle.

A right-angled triangle is a triangle in which one angle is 90 degrees.

Properties of a Right Angled Triangle

- A hypotenuse is the line segment opposite to the right-angle.

- An opposite is the line segment opposite to the angle Ɵ.

- An adjacent is the line segment next to the angle Ɵ.

Trigonometric Ratios

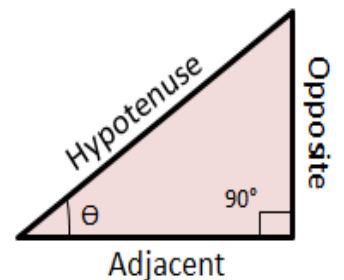There are total 6 trigonometric ratios for a right angled triangle.

1. Sine

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

2. Cosine

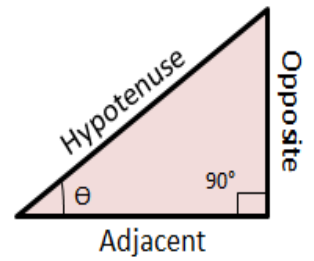$$cos(\theta) = \frac{adjacent}{hypotenuse}$$

Right Angle Trigonometry Guided Notes

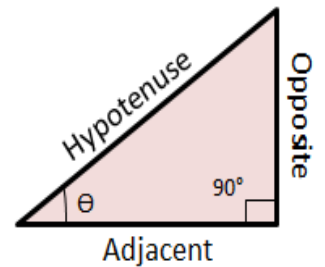**3. Tangent**

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

4. Cosecant

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

5. Secant

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

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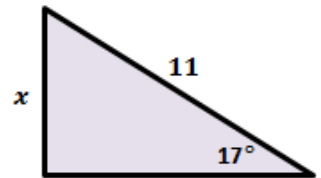
$$cot(\theta) = \frac{adjacent}{opposite} = \frac{1}{cot(\theta)}$$

Problem 1: Write the trigonometric ratios for the angle C in the triangle shown.
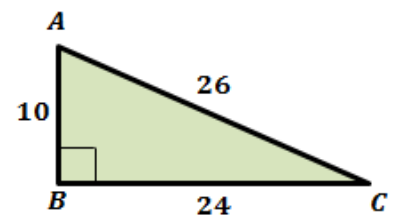
Right Angle Trigonometry Guided Notes

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

Pythagorean Theorem

In a right-triangle, the sum of the squares of the lengths of adjacent and opposite is equal to the square of the length of hypotenuse.
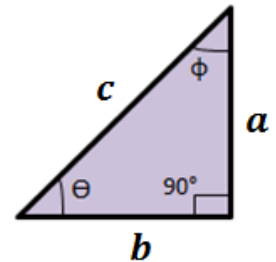
$$c^2 = a^2 + b^2$$

Where,

$c = Hypotenuse$

$a = Opposite$

$b = Adjacent$

Problem 3: Find the unknown length x in the right triangle shown.