## Analytic Trigonometry Unit 1 Readings:

## Angles and Triangles

An **angle** is formed by two rays - the initial side and the terminal side - originating from a

 common point, the **vertex**

Angles are usually represented by Greek letters, such as *α*, *β*, and *θ*

The *x*- and *y*-axes split the rectangular coordinate system into four quarters - **quadrants**

 I, II, III, and IV - counterclockwise starting from the upper-right quadrant

The quadrant of an angle is the one the terminal side lies in

A **degree**, symbolized by °, is a measure of angles, such as 90°

|  |  |  |  |
| --- | --- | --- | --- |
| Acute angle0° < *θ* < 90° | Right angle*θ* = 90° | Obtuse angle90° < *θ* < 180° | Straight angle*θ* = 180° |
| *θ* |  | *θ* | *θ* |

A **reference angle** is a positive acute angle *θ*° formed by the

*θ*

Reference

Angle

 terminal side of a nonacute angle *θ* and the *x*-axis

A **co-terminal** angle is obtained when you increase or decrease

 an angle by a multiple of 360°

**Complements** are two positive angles whose sum equals 90°

**Supplementary** - two positive angles whose sum equals 180°

**Explementary** - two positive angles whose sum = 360°

**The three angles of a triangle MUST ADD UP TO 180º**

**The Pythagorean Theorem** as the Greeks saw it



b-a

a

Hypotenuse

The square Equals

b

a

of the the sum

b

a

Hypotenuse

hypotenuse: of the

b-a

b

b

Hypotenuse

 squares

b

a

 of each

Hypotenuse

 other side:

b

b

a

a

a

Hypotenuse

b

a

Hypotenuse

Standard way of writing the triangle:

A

C

B

a

b

c

*θ*

Side adjacent to *θ*

Side opposite *θ*

Hypotenuse

a2 + b2 = c2

 or



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