# The Slope-Intercept Linear Equation

y = mx + b

m = slope b = y-intercept

*Example:*

y = -2/3x + 1

**slope** = -2/3 (i.e. vertical change = -2; horizontal change = 3; or down 2, over 3.

**y-intercept** = 1 (i.e. the line crosses the y-axis at (0,1)).

*x*

*y*

# The 30°- 60°- 90° Triangle Theorem

2s

60º

30°

s

s√3

hypotenuse = (2)(shorter leg)

longer leg = (√3)(shorter leg)

# The 45°- 45°- 90° Triangle Theorem

45º

s

s√2

45°

s

hypotenuse = (√2)(leg)

# Area of a Regular Polygon

The area of a regular polygon is half the product of the apothem and the perimeter.

*A = ½ ap*

*p=5s*

*(in a regular pentagon)*

*s*

*a*

# Circumference and Area of a Circle

|  |  |
| --- | --- |
| The **circumference** of a circle is the length in units *around* the circle.  r  d  C=πd or C=2πr | The **area** of a circle is the number of square units *inside* the circle.  r  A=πr2 |

# The Distance Formula

P1P2 =

\_\_\_\_\_\_\_\_\_\_\_\_\_

√(x2-x1)2 + (y2-y1)2

# The Point-Slope Form (Linear Equation)

y – y1 = m (x – x1)

*Example: The equation for a line with a slope (m) of 2 that intersects a point with coordinates (3,-5) would be:*

y + 5 = 2 (x - 3) OR y + 5 = 2x – 6 OR

y = 2x – 11 OR -2x + y = -11

# The Pythagorean Theorem

a2 + b2 = c2

c

b

a

# The Quadratic Formula

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x = -b ± √b2 – 4ac

2a

# Formula for the Slope of a Line

m = y2 – y1

x2 – x1

# Trigonometric Ratios - SOH-CAH-TOA

sin = opposite

hypotenuse

**o p p o s I t e**

**h y p o t e n u s e**

cos = adjacent

***x°***

hypotenuse

**a d j a c e n t**

tan = opposite

adjacent

# Multiplying Integers

When the signs of both terms are the same, the product is positive:

(+)(+) = +

(-)(-) = +

When the signs of the terms are different, the product is negative:

(+)(-) = -

(-)(+) = -