

# STAAR ALGEBRA I REFERENCE MATERIALS



## GENERAL FORMULAS

Slope of a line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

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Pythagorean theorem

$$a^2 + b^2 = c^2$$

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Quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

## FORMS OF LINEAR EQUATIONS

Slope-intercept form

$$y = mx + b$$

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Point-slope form

$$y - y_1 = m(x - x_1)$$

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Standard form

$$Ax + By = C$$

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## CIRCUMFERENCE

Circle  $C = 2\pi r$  or  $C = \pi d$

## AREA

Triangle  $A = \frac{1}{2}bh$

Rectangle or parallelogram  $A = bh$

Rhombus  $A = \frac{1}{2}d_1d_2$

Trapezoid  $A = \frac{1}{2}(b_1 + b_2)h$

Regular polygon  $A = \frac{1}{2}aP$

Circle  $A = \pi r^2$

## SURFACE AREA

	Lateral	Total
Prism	$S = Ph$	$S = Ph + 2B$
Pyramid	$S = \frac{1}{2}Pl$	$S = \frac{1}{2}Pl + B$
Cylinder	$S = 2\pi rh$	$S = 2\pi rh + 2\pi r^2$
Cone	$S = \pi rl$	$S = \pi rl + \pi r^2$
Sphere		$S = 4\pi r^2$

## VOLUME

Prism or cylinder  $V = Bh$

Pyramid or cone  $V = \frac{1}{3}Bh$

Sphere  $V = \frac{4}{3}\pi r^3$