STAAR GEOMETRY REFERENCE MATERIALS



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	$S=2\pi rh$		$S = 2\pi r h + 2\pi r^2$
Cone	$S = \pi r l$		$S = \pi r l + \pi r^2$
Sphere			$S = 4\pi r^2$
VOLUME			
Prism or cylinder			V = Bh
Pyramid or cone			$V = \frac{1}{3}Bh$
Sphere			$V = \frac{4}{3}\pi r^3$

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COORDINATE GEOMETRY

Midpoint	$\left(\frac{X_{1}+X_{2}}{2},\frac{Y_{1}+Y_{2}}{2}\right)$	
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Distance formula
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Slope of a line
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Slope-intercept form of a linear equation
$$y = mx + b$$

Point-slope form of a linear equation
$$y - y_1 = m(x - x_1)$$

Standard form of a linear equation
$$Ax + By = C$$

RIGHT TRIANGLES

Pythagorean theorem

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

Trigonometric ratios

$$sin A = \frac{opposite leg}{hypotenuse}$$

$$\cos A = \frac{\text{adjacent leg}}{\text{hypotenuse}}$$

$$tan A = \frac{opposite leg}{adjacent leg}$$



