

ISTEP+ Mathematics Reference Sheet

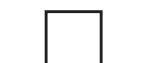
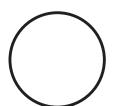
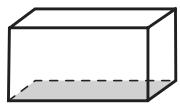
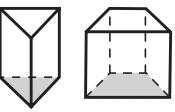
Figure	Formulas for Area (A) and Circumference (C)	
Triangle		$A = \frac{1}{2}bh$ Area = $\frac{1}{2} \times \text{base} \times \text{height}$
Rectangle		$A = lw$ Area = length × width
Trapezoid		$A = \frac{1}{2}h(b_1 + b_2)$ Area = $\frac{1}{2} \times \text{height} \times \text{sum of bases}$
Parallelogram		$A = bh$ Area = base × height
Square		$A = s^2$ Area = side × side
Circle		$A = \pi r^2$ $C = 2\pi r$ Area = $\pi \times \text{square of radius}$ Circumference = $2 \times \pi \times \text{radius}$ $\pi \approx 3.14 \text{ or } \frac{22}{7}$

Figure	Formulas for Volume (V) and Surface Area (SA)	
Rectangular Prism	 $V = lwh$ $SA = 2lw + 2hw + 2lh$	Volume = length × width × height Surface Area = $2(\text{length} \times \text{width}) + 2(\text{height} \times \text{width}) + 2(\text{length} \times \text{height})$
Cylinder	 $V = \pi r^2 h$ $SA = 2\pi r^2 + 2\pi rh$	Volume = $\pi \times \text{square of radius} \times \text{height}$ Surface Area = $2 \times \pi \times \text{square of radius} + 2 \times \pi \times \text{radius} \times \text{height}$

Conversions

1 foot = 12 inches	1 minute = 60 seconds	1 meter = 1000 millimeters
1 yard = 3 feet	1 hour = 60 minutes	1 meter = 100 centimeters
1 mile = 5,280 feet	1 day = 24 hours	1 kilometer = 1000 meters
1 mile = 1,760 yards	1 cup = 8 fluid ounces	1 gram = 1000 milligrams
1 pound = 16 ounces	1 pint = 2 cups	1 kilogram = 1000 grams
1 ton = 2,000 pounds	1 quart = 2 pints	1 liter = 1000 cubic centimeters
	1 gallon = 4 quarts	1 liter = 1000 milliliters

Figure	Formulas for Volume (V) and Surface Area (SA)		
General Prisms 	$V = Bh$	Volume = area of base \times height Surface Area = sum of the areas of the faces	
Sphere 	$V = \frac{4}{3}\pi r^3$ $SA = 4\pi r^2$	Volume = $\frac{4}{3} \times \pi \times$ cube of radius Surface Area = $4 \times \pi \times$ square of radius	$\pi \approx 3.14$ or $\pi \approx \frac{22}{7}$
Right Circular Cone 	$V = \frac{1}{3}\pi r^2 h$	Volume = $\frac{1}{3} \times \pi \times$ square of radius \times height	
Regular Pyramid 	$V = \frac{1}{3}Bh$	Volume = $\frac{1}{3} \times$ area of base \times height	

Slope-Intercept Form

$$y = mx + b$$

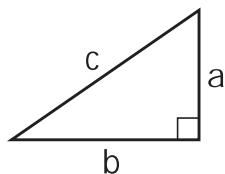
where m = slope and b = y -intercept

Simple Interest Formula

$$I = prt$$

where I = interest, p = principal,
 r = rate, and t = time in years

Pythagorean Theorem



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

Temperature Formulas

$$^{\circ}\text{C} = \frac{5}{9}(\text{F} - 32)$$

$$^{\circ}\text{Celsius} = \frac{5}{9} \times (\text{Fahrenheit} - 32)$$

$$^{\circ}\text{F} = \frac{9}{5}\text{C} + 32$$

$$^{\circ}\text{Fahrenheit} = \frac{9}{5} \times ^{\circ}\text{Celsius} + 32$$

Distance Formula

$$d = rt$$

where d = distance, r = rate, and t = time