



# NSCAS NEBRASKA STUDENT-CENTERED ASSESSMENT SYSTEM

## Mathematics Reference Sheet

Shape	Area	Circumference	Key
Circle	$A = \pi r^2$	$C = \pi d = 2\pi r$	$b$ = base $l$ = length
Triangle	$A = \frac{1}{2}bh$	<b>Perimeter</b>	$h$ = height $w$ = width
Rectangle	$A = l \times w$	$P = 2l + 2w = 2(l + w)$	$B$ = area of base $s$ = side length
Square	$A = s \times s$	$P = s + s + s + s$	$H$ = height of triangular prism $s_1, s_2, s_3$ are the lengths of each side of the triangular base
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$		$d$ = diameter $r$ = radius
Parallelogram	$A = bh$		Use 3.14 for $\pi$ .

3 – Dimensional Shape	Volume	Surface Area				
Rectangular Prism	$V = lwh = Bh$	$SA = 2lw + 2lh + 2wh = 2B + 2lh + 2wh$				
Triangular Prism	$V = \frac{1}{2}lwh = Bh$	$SA = bh + (s_1 + s_2 + s_3)H = 2B + (s_1 + s_2 + s_3)H$				
Cone	$V = \frac{1}{3}\pi r^2 h$	<table><tr><th>Percent Change</th></tr><tr><td><math>\% \text{ change} = \frac{\text{difference in amount}}{\text{original amount}}</math></td></tr><tr><th>Pythagorean Theorem</th></tr><tr><td><math>c^2 = a^2 + b^2</math></td></tr></table>	Percent Change	$\% \text{ change} = \frac{\text{difference in amount}}{\text{original amount}}$	Pythagorean Theorem	$c^2 = a^2 + b^2$
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Cylinder	$V = \pi r^2 h$					
Sphere	$V = \frac{4}{3}\pi r^3$					

Standard Units	Metric Units
<b>Conversions – Length</b>	
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)
1 yard (yd) = 3 feet (ft) = 36 inches (in.)	1 meter (m) = 100 centimeters (cm)
1 mile (mi) = 1,760 yards (yd) = 5,280 feet (ft)	1 meter (m) = 1,000 millimeters (mm)
	1 kilometer (km) = 1,000 meters (m)
<b>Conversions – Volume</b>	
1 cup = 8 fluid ounces (fl oz)	1 liter (l) = 1,000 milliliters (ml)
1 pint (pt) = 2 cups	1 liter (l) = 1,000 cubic centimeters (cu. cm)
1 quart (qt) = 2 pints (pt)	
1 gallon (gal.) = 4 quarts (qt)	
<b>Conversions – Weight/Mass</b>	
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)
1 ton = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)