Mathematics Reference Sheet

Conversions

U.S. Customary

1 foot = 12 inches
1 yard = 3 feet
1 mile = 5280 feet
1 acre ≈ 43,560 square feet
1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 231 cubic inches
1 pound = 16 ounces
1 ton = 2000 pounds
1 cubic foot ≈ 7.5 gallons

Metric

1 centimeter = 10 millimeters
1 meter = 100 centimeters
1 kilometer = 1000 meters
1 liter = 1000 milliliters
1 kiloliter = 1000 liters
1 milliliter = 1 cubic centimeter
1 liter = 1000 cubic centimeters
1 cubic millimeter = 0.001 milliliter
1 gram = 1000 milligrams
1 kilogram = 1000 grams

Time

1 minute = 60 seconds
1 hour = 60 minutes
1 hour = 3600 seconds
1 year = 52 weeks

Temperature

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

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

U.S. Customary to Metric

1 inch ≈ 2.54 centimeters
1 foot ≈ 0.3 meter
1 mile ≈ 1.6 kilometers
1 quart ≈ 0.95 liter
1 gallon ≈ 3.79 liters
1 cup ≈ 237 milliliters
1 pound ≈ 0.45 kilogram
1 ounce ≈ 28.3 grams
1 gallon ≈ 3785 cubic centimeters

Metric to U.S. Customary

1 centimeter ≈ 0.39 inch
1 meter ≈ 3.28 feet
1 kilometer ≈ 0.6 mile
1 liter ≈ 1.06 quarts
1 liter ≈ 0.26 gallon
1 kilogram ≈ 2.2 pounds
1 gram ≈ 0.035 ounce
1 cubic meter ≈ 264 gallon

Rules of Exponents

Product of Powers Property: $a^m \cdot a^n = a^{m+n}$

Quotient of Powers Property: $\frac{a^m}{a^n} = a^{m-n}$, where $a \neq 0$

Zero Exponents: $a^0 = 1$, where $a \neq 0$

Negative Exponents: $a^{-n} = \frac{1}{a^n}$, where $a \neq 0$

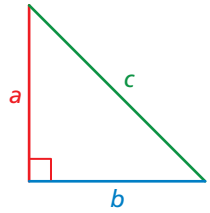
Slope-Intercept Form

$y = mx + b$

slope, y-intercept

Pythagorean Theorem

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



Surface Area and Volume

Prism

S = areas of bases + areas of lateral faces

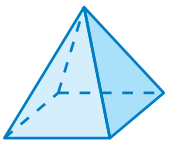
$V = Bh$

Cylinder

$S = 2\pi r^2 + 2\pi rh$

$V = Bh$

Pyramid



S = area of base + areas of lateral faces

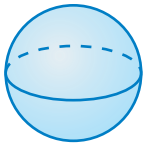
$V = \frac{1}{3}Bh$

Cone

$S = \pi r^2 + \pi r\ell$

$V = \frac{1}{3}Bh$

Sphere



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

Circumference and Area of a Circle

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

$\pi \approx \frac{22}{7}$, or 3.14

$A = \pi r^2$