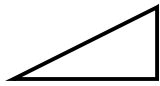


Mathematics Reference Sheet

Area



Triangle

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



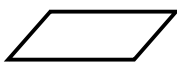
Rectangle

$$A = \ell w$$



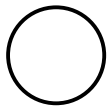
Trapezoid

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



Parallelogram

$$A = bh$$



Circle

$$A = \pi r^2$$

KEY

b = base

d = diameter

h = height

r = radius

ℓ = length

A = area

w = width

C = circumference

S.A. = surface area

V = volume

B = area of base

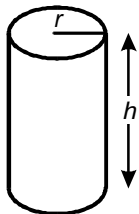
Use 3.14 or $\frac{22}{7}$ for π

Circumference

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

Surface Area

1. Surface area of a prism or pyramid equals the sum of the areas of all faces.
2. Surface area of a cylinder equals the sum of the areas of the bases and the area of its rectangular wrap.



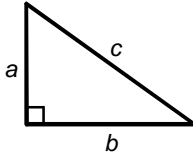
$$S.A. = 2(\pi r^2) + 2(\pi r)h$$

3. Surface area of a sphere: $S.A. = 4\pi r^2$

Volume

1. Volume of a prism or cylinder equals the Area of the Base (B) times the height (h).
 $V = Bh$
2. Volume of a pyramid or cone equals $\frac{1}{3}$ times the Area of the Base (B) times the height (h).
 $V = \frac{1}{3} Bh$
3. Volume of a sphere: $V = \frac{4}{3} \pi r^3$

Pythagorean theorem: $a^2 + b^2 = c^2$



Simple interest formula: $I = prt$

I = simple interest, p = principal,
 r = rate, t = time.

Distance formula: $d = rt$

d = distance, r = rate, t = time.

**Given a line containing points
 (x_1, y_1) and (x_2, y_2)**

- **Slope of line**

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

- **Distance between two points**

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

- **Midpoint between two points**

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Conversions

1 yard = 3 feet = 36 inches
1 mile = 1,760 yards = 5,280 feet
1 acre = 43,560 square feet
1 hour = 60 minutes
1 minute = 60 seconds

1 liter = 1000 milliliters = 1000 cubic centimeters
1 meter = 100 centimeters = 1000 millimeters
1 kilometer = 1000 meters
1 gram = 1000 milligrams
1 kilogram = 1000 grams

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 pound = 16 ounces
1 ton = 2,000 pounds

Metric numbers with four digits are presented without a comma (e.g., 9960 kilometers).
For metric numbers greater than four digits, a space is used instead of a comma
(e.g., 12 500 liters).