

Areas and Volumes

the equations here will be similar to most users and are to demonstrate calculations with BlackBox

These are formulas to find the area and volume for various shapes.

If you load in the Math file called Area and Volume, the symbols like Base and Height will be ready to use in calculations straight away. If you want to use these equations without loading in this file, use the equations and teach the meanings of the symbols to BlackBox. This is how you make new files of symbols and equations that you can reuse when you need them.

When in the Notepad (this page), a blue underline means Hypertext - clicking on it will load the underlined text into the calculator (saves retyping).

The formulas

Rectangle

$$\text{Area} = \text{Base} * \text{Height}$$

Parallelogram

$$\text{Area} = \text{Base} * \text{Height} \text{ [Parallelogram]}$$

Trapezoid

$$\text{Area} = \frac{1}{2} \text{Height} * (\text{a} + \text{b}) \text{ [Trapezoid -> Parallel sides a \& b]}$$

Circle

$$\text{Area} = \text{Pi } r^2 \text{ [Circle]}$$

$$\text{Circumference} = 2 \text{ Pi } r \text{ [Circle]}$$

Triangle

$$\text{Area} = \frac{1}{2} \text{Base} * \text{Height} \text{ [Triangle]}$$

Cube

$$\text{Volume} = \text{Length}^3 \text{ [Cube]}$$

$$\text{SurfaceArea} = 6 \text{Length}^2 \text{ [Cube]}$$

Rectangular Prism

$$\text{Area} = \text{Length} * \text{Width} * \text{Height} \text{ [Rectangular Prism]}$$

$$\text{SurfaceArea} = 2 * (\text{Width} * \text{Length} + \text{Height} * \text{Width} + \text{Height} * \text{Length}) \text{ [Rect Prism]}$$

Sphere

$$\text{Volume} = \frac{4}{3} \text{ Pi } r^3 \text{ [Sphere]}$$

Triangular Prism

$$\text{Volume} = \frac{1}{2} \text{Base} * \text{Height} * \text{Length} \text{ [Triangular Prism]}$$

Trapezoidal Prism

$$\text{Volume} = \frac{1}{2} (\text{a} + \text{b}) * \text{Height} * \text{Length} \text{ [Trapezoidal Prism]}$$

Cone

$$\text{Volume} = (\text{Pi } r^2 \text{ Height}) / 3 \quad [\text{Cone}]$$

Pyramid

$$\text{Volume} = (\text{Length} * \text{Base} * \text{Height}) / 3 \quad [\text{Rectangular Pyramid}]$$

$$\text{Volume} = (\text{Length} * \text{Base} * \text{Height}) / 6 \quad [\text{Triangular Pyramid}]$$

Cylinder

$$\text{Volume} = \text{Pi } r^2 \text{ Length} \quad [\text{Cylinder}]$$

$$\text{SurfaceArea} = 2 \text{ Pi } r^2 + (2 \text{ Pi } r^2 \text{ Length}) \quad [\text{Cylinder}]$$