

Mathematics Formula Sheet & Explanation

The 2014 GED® Mathematical Reasoning test contains a formula sheet, which displays formulas relating to geometric measurement and certain algebra concepts. Formulas are provided to test-takers so that they may focus on *application*, rather than the *memorization*, of formulas.

Area of a:

| | |
|---------------|-------------------------------|
| square | $A = s^2$ |
| rectangle | $A = lw$ |
| parallelogram | $A = bh$ |
| triangle | $A = \frac{1}{2}bh$ |
| trapezoid | $A = \frac{1}{2}h(b_1 + b_2)$ |
| circle | $A = \pi r^2$ |

Perimeter of a:

| | |
|---------------------------|--|
| square | $P = 4s$ |
| rectangle | $P = 2l + 2w$ |
| triangle | $P = s_1 + s_2 + s_3$ |
| Circumference of a circle | $C = 2\pi r$ OR $C = \pi d$; $\pi \approx 3.14$ |

Surface area and volume of a:

| | | |
|-------------------|---------------------------|----------------------------|
| rectangular prism | $SA = 2lw + 2lh + 2wh$ | $V = lwh$ |
| right prism | $SA = ph + 2B$ | $V = Bh$ |
| cylinder | $SA = 2\pi rh + 2\pi r^2$ | $V = \pi r^2 h$ |
| pyramid | $SA = \frac{1}{2}ps + B$ | $V = \frac{1}{3}Bh$ |
| cone | $SA = \pi rs + \pi r^2$ | $V = \frac{1}{3}\pi r^2 h$ |
| sphere | $SA = 4\pi r^2$ | $V = \frac{4}{3}\pi r^3$ |

(p = perimeter of base with area B ; $\pi \approx 3.14$)

Data

| | |
|--------|---|
| mean | mean is equal to the total of the values of a data set, divided by the number of elements in the data set |
| median | median is the middle value in an odd number of ordered values of a data set, or the mean of the two middle values in an even number of ordered values in a data set |

Algebra

| | |
|--|---|
| slope of a line | $m = \frac{y_2 - y_1}{x_2 - x_1}$ |
| slope-intercept form of the equation of a line | $y = mx + b$ |
| point-slope form of the equation of a line | $y - y_1 = m(x - x_1)$ |
| standard form of a quadratic equation | $y = ax^2 + bx + c$ |
| quadratic formula | $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ |
| Pythagorean theorem | $a^2 + b^2 = c^2$ |
| simple interest | $I = Prt$ (I = interest, P = principal, r = rate, t = time) |
| distance formula | $d = rt$ |
| total cost | total cost = (number of units) \times (price per unit) |