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: \( C = 2\pi r \text{ OR } C = \pi d; \pi \approx 3.14 \)

Surface area and volume of a:

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

\( (p = \text{perimeter of base with area } B; \pi \approx 3.14) \)

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: \( I = Prt \) \( (I = \text{interest}, P = \text{principal}, r = \text{rate}, t = \text{time}) \)
- distance formula: \( d = rt \)
- total cost: total cost = (number of units) \times (price per unit)