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) × (price per unit)

TI-30XS Calculator Reference Sheet

The calculator reference sheet is provided on most items on the 2014 GED® Mathematical Reasoning Mathematical Reasoning test, as well as certain items on the Scientific Reasoning and Social Studies tests. The calculator reference sheet is provided to test-takers in order to demonstrate the functionality of the onscreen calculator, specifically in terms of what order to click the buttons in complex problems, such as order of operations or calculating with fractions.

BASIC ARITHMETIC

To perform basic arithmetic, enter numbers and operation symbols using the standard order of operations.

EXAMPLE

$8 \times {-4} + 7 =$

The correct answer = **-25**

PERCENTAGES

To calculate with percentages, enter the number, then 

.

EXAMPLE

$40\% \times 560 =$

The correct answer = **224**

SCIENTIFIC NOTATION

To perform calculations with scientific notation, use the 

key.

EXAMPLE

$7.8 \times 10^{8} - 1.5 \times 10^{8} =$

The correct answer = **630000000**

FRACTIONS

To perform calculations with fractions, use the 
key. The answer will automatically be formatted in reduced form.

EXAMPLE

$\frac{2}{9} \times \frac{3}{7} =$

The correct answer = $\frac{2}{21}$

MIXED NUMBERS

To perform calculations with mixed numbers, use  .
As with fractions, the answer will automatically be formatted in reduced form.

EXAMPLE

$12\frac{5}{6} - 1\frac{1}{2} =$

The correct answer = $\frac{34}{3}$

POWERS AND ROOTS

To perform calculations with powers and roots, you will use the following keys:

EXAMPLE

$1.2^2 =$

The correct answer = **1.44**

EXAMPLE

$7^4 =$

The correct answer = **2401**

EXAMPLE

$\sqrt{529} =$

The correct answer = **23**

EXAMPLE

$\sqrt[3]{1728} =$

The correct answer = **12**

TOGGLE KEY

The answer toggle key  can be used to toggle the display result between fraction and decimal answers, exact square root and decimal, and exact pi and decimal.

EXAMPLE

$\frac{9}{10} =$

The correct answer = **0.9**