

# O.G.T. MATHEMATICS: *QUICK STUDY GUIDE*

## Point Values:

Multiple Choice = 1pt

Short Answer = 2 pt

**Extended Response = 4 pts**

Be sure to support answers for free response.

Skip questions that you're stuck on, come back at the end – LEAVE NOTHING BLANK!!!!

## BEFORE THE TEST:

Get a good night sleep  
(8 hours is key!)

Eat Breakfast (not candy bars and soda)

Take your TIME!!!

## DURING THE TEST:

Draw a picture if there's not one there.

Read the question before attempting to answer.

Try to answer before looking at the multiple choices – look to see if your answer is there.

Your **FIRST** answer is usually correct – DON'T CHANGE IT!

Does your answer make sense?

## Test Taking Strategies:

**Eliminate** answer choices that look right but are planted to fool you.

**Back solve** by plugging the answer choices into the question being asked.

**Plug and Chug:** try plugging in a number instead of a letter if you're stumped by a problem.

## Calculator Box:

Scientific Notation is  
"inverse decimal point"

Use "10 y<sup>x</sup> number" for 10<sup>#</sup>

% is "inverse ="

a b/c is the "fraction button"... (hit "=", it reduces the fraction)

Square Root is "inverse x<sup>2</sup>"

## Graphing:

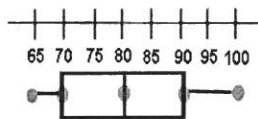
$y = x^2$  graphs a U-shape  
if a is positive, it's a smile  
if a is negative, it's a frown

$y = |x|$  graphs a V-shape

$y = mx + b$  graphs a line  
m = slope (rise over run)  
b = y-int

Plotting points: "y's up" wise up  
(3, -6) from origin, go right 3, down 6

## Box and Whiskers Graph:



The 5 dots from left to right:  
Lower bound, 1<sup>st</sup> quartile, median, 3<sup>rd</sup> quartile, upper bound

Median – middle number  
Mode – the number seen "MOST"  
Mean – the average (add and divide by how many)

## PEMDAS

Parenthesis  
Exponents  
Multiply and Divide  
(from left to right)  
Add and Subtract (from  
left to right)

When solving for x –  
use "reverse PEMDAS"

## VUXHOY:

Vertical lines have an  
Undefined slope  
 $x = \#$   
Horizontal lines have a  
**0** slope  
 $y = \#$

## LAST MINUTE NOTES:

**Probability** is the measure of how likely an event is

$$P(A) = \frac{\text{The Number Of Ways Event A Can Occur}}{\text{The Total Number Of Possible Outcomes}}$$

An **outcome** is the result of a single trial of an experiment



"Go Help Quincy Pick Cherries" = Gallon, Half gallon, Quart, Pint, Cup

**I = prt** (simple interest = principal x rate x time)

**D = rt** (distance = rate x time)

Tax makes things cost **MORE**



Discount makes things cost **LESS**

Parallel Lines have the *same slope*.  
Perpendicular Lines have slopes that are *negative reciprocals* (like  $\frac{1}{2}$  and  $-2$ )

Midpoint: (average of the x's, average of the y's)

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

Surface area of a rectangular prism = area of the base + area of the top + area of each side

Difference between prism:  and pyramid:  Prism has 2 bases while a pyramid has 1 base

Cylinder:  Cone:  Sphere: 

Area = how many squares fit **ON** the shape

Area is in  $\text{unit}^2$

Volume = How many blocks fit **IN** the object

Volume is in  $\text{unit}^3$

Perimeter = How far around an object

Perimeter is in units

**A proportion** is an equation with a ratio on each side – to solve, cross multiply and divide.

Example:  $\frac{x}{6} = \frac{1}{2}$

$$2x = 6$$

$$x = 3$$

### King Henry Died Drinking Chocolate Milk

Kilo

Hecto

Deca

<meter liter gram>

Deci

Centi

Milli

**Make sure that your units match before you start doing calculations**

### The number sets:

Natural numbers	The counting numbers	1, 2, 3, 4, 5, ...
Whole numbers	The set of natural numbers and 0	0, 1, 2, 3, 4, ...
Integers	The set of whole numbers and their opposites	..., -2, -1, 0, 1, 2, ...
Rational numbers	The set of numbers that can be written as a ratio of integers	$-\frac{3}{4}$ , 5, -2, 0.5, 0
Irrational numbers	The set of numbers that cannot be written as a ratio of integers	$\pi$ , $\sqrt{10}$ , $8 + \sqrt{2}$