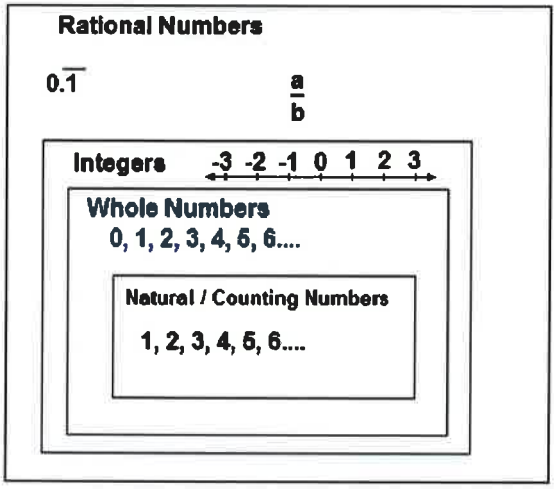
Name _____

Things to Remember on the 6th Grade Math STAAR Test

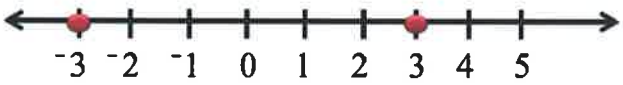
RATIONAL NUMBERS



ABSOLUTE VALUE

Absolute value is the distance a number is located from 0 on a number line.
Absolute value is ALWAYS positive.

-3 and 3 are opposites.



Absolute Value = distance away from zero on the number line

$|3| = 3$ $|-5| = 5$

$|-3| = 3$ $|-\frac{1}{2}| = \frac{1}{2}$

ORDER OF OPERATIONS

You must follow the order of operations when solving ALL problems.
The steps are: **PEMDAS**
Parentheses
Exponents
Multiply/**D**ivide-from left to right like you're reading a book
Add/**S**ubtract-from left to right like you're reading a book

EXPONENTS

The exponent tells you how many times you multiply the BASE NUMBER by ITSELF.

$3^4 = 3 \times 3 \times 3 \times 3 = 243$

You write exponents in order from smallest to largest BASE number.

$2^3 \times 5^2 \times 11$

ESTIMATION

Look for the words ABOUT, APPROXIMATELY or ESTIMATE.

- Always round FIRST.
- Round to the HIGHEST place value the numbers have in common.
- DON'T round SINGLE digits.

PRIME FACTORIZATION

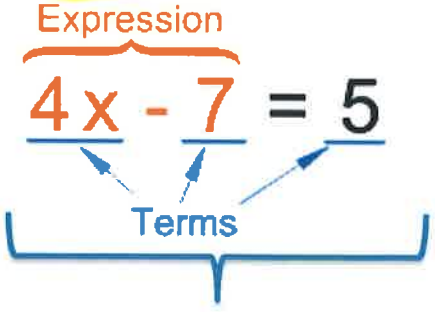
Prime-A number with ONLY 2 factors.
"2" is the only EVEN prime number.
Composite-A number with MORE THAN 2 factors.
"1" is NEITHER prime nor composite. It's special.
To find the prime factorization of a number, draw a FACTOR TREE.
Remember that all of the factors MUST be prime and there are NO ones in the tree.

MATH PROPERTIES

Commutative
Associative
Distributive
Identity
Inverse

EXPRESSIONS AND EQUATIONS

Expressions are one side of an equation.
An equation ALWAYS has an equal sign.



EQUATION

INTEGERS

Positive Integers—gain of yardage, going above sea level, depositing money, adding amounts

Negative Integers—loos of yardage, going below sea level, withdrawing money, subtracting amounts

Rules for adding integers:

If the signs are the same, add and keep the sign.

If the signs are different, subtract and keep the sign of the greater absolute value.

Rules for subtracting integers:

ADD THE OPPOSITE and follow the addition rules.

Rules for multiplying and dividing:

If the signs are the same, the answer is POSITIVE.

If the signs are different, the answer is NEGATIVE.

DECIMALS

LINE UP THE DECIMALS when: ADDING, SUBTRACTING (Don't subtract up—REGROUP!), COMPARING & ORDERING!!!

If you can't see the decimal, it's at the END

When multiplying decimals, count the total number of decimal places in the factors and make sure your product has the same number.

When dividing by decimals in the divisor, move the decimal to make it a whole number and then move the decimal the same number of places in the dividend. Then, slide your decimal up into your quotient.

ADDING AND SUBTRACTING MIXED NUMBERS AND FRACTIONS

You must have a COMMON DENOMINATOR when adding or subtracting fractions and mixed numbers.

Be sure to SIMPLIFY your answers.

When subtracting a mixed number and the bottom fraction is larger, regroup from the whole number...DON'T SUBTRACT UP!!!

PERIMETER VS. AREA VS. VOLUME

Perimeter (1-D)—the distance around a polygon and is measured in units (ft, in, cm, mm)

Area (2-D)—the total number of square units it takes to fill in a figure and is measured in square units (ft^2, in^2, cm^2, mm^2)

Volume (3-D)-the total number of cubic units it takes to fill up a solid and is measured in cubic units (ft^3, in^3, cm^3, mm^3)

When calculating perimeter, area, or volume of ANY figure, **USE YOUR STAAR FORMULA CHART** and always copy down the formula.

Area of a triangle AND a trapezoid—You must DIVIDE by 2 or MULTIPLY by 1/2!

RATIOS

PLEASE, PLEASE, PLEASE read carefully to see if the question asks for a part to part ratio (even if you're given a part and whole) or a part to whole ratio (For example, boys to girls when given boys and total)

You may have to SIMPLIFY your ratios, so look closely at the answer choices.

Ratios can be written 3 different ways—as a fraction, with a colon, or with the word "to".

PROPORTIONS

LABEL, LABEL, LABEL your proportions with WORDS FIRST!!

Then, plug in the numbers based on the way you set up the ratio with words.

Use CROSS-PRODUCTS or find a relationship either WITHIN or BETWEEN the two ratios to find the missing number in the proportion.

PERCENT PROPORTION

$$\frac{\text{Part}}{\text{Total}} = \frac{\%}{100}$$

FRACTIONS

When comparing or order fractions, you must have a common denominator.
When adding or subtracting fractions, you must have a common denominator.
When multiplying fractions, multiply numerator by numerator and denominator by denominator and then SIMPLIFY.
When dividing fractions, either find common denominators and divide straight across OR multiply by the reciprocal.

FRACTIONS, DECIMALS, PERCENTS

Percents are ALWAYS over 100.
To change a fraction to a decimal, DIVIDE the numerator by the denominator.
To change a decimal to a fraction, read the decimal correctly to yourself. ALWAYS simplify fractions.
To change a decimal to a percent, move the decimal two places to the RIGHT.
To change a percent to a decimal, move the decimal two places to the LEFT.

Benchmark Fractions, Decimals, and Percents

KEY

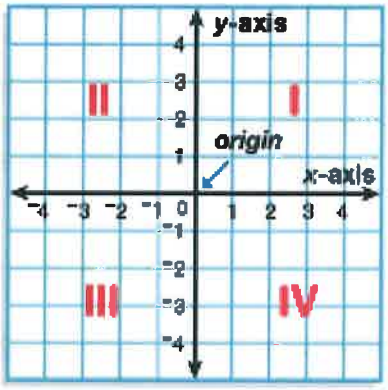
Fraction	Decimal	Percent
1	1.0	100%
1/10	0.1	10%
1/100	0.01	1%
1/4	0.25	25%
1/2	0.5	50%
3/4	0.75	75%
1/5	0.2	20%
2/5	0.4	40%
3/5	0.6	60%
4/5	0.8	80%
1/3	0.33	33.3% or 33 1/3%
2/3	0.66	66.6% or 66 2/3%

MMMR

Mean (Average)—Add, Count, Divide
Median (Middle Number)—Always put the numbers in order from least to greatest first. If there are two numbers in the middle, find the mean of the two.
Mode (Most Often)
Range—Subtract the smallest number from the largest.
Q1-First Quartile-the median of the bottom half of the data
Q3-Third Quartile-the median of the top half of the data
IQR-Interquartile Range-the difference between Q3 and Q1 (Q3 – Q1 = IQR)

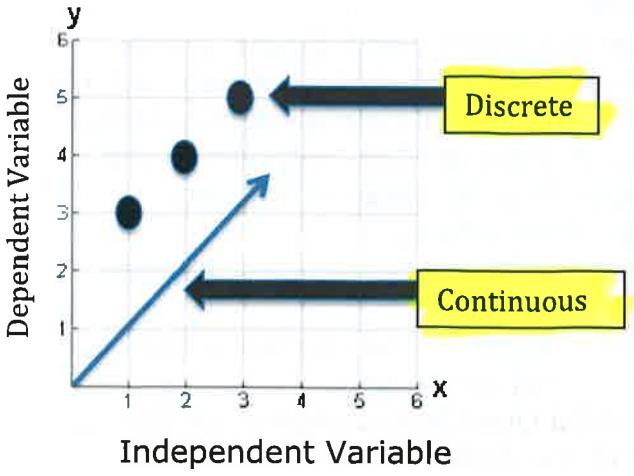
COORDINATE GRAPHING (PLOTTING POINTS)

Remember to move on the x-axis first, then on the y-axis second (x,y)
"Run before you jump"
Be sure to look at the intervals on the axes. It may be divided into fractions or decimals. Look at it carefully.



SOLVING EQUATIONS AND INEQUALITIES

You must solve for the variable (Get it on one side of the equal sign by itself).
Whatever you do to one side, you must do to the other.
When multiplying or dividing by a negative in an inequality, the SIGN CHANGES DIRECTIONS!



MEASUREMENT CHART AND RULERS
Remember to use your math chart for measurement questions—anything involving length, capacity, mass, or weight.
Be sure to use the appropriate ruler on the measurement chart when asked to measure.
Remember that the rulers are different sides of the chart.
Notice if there is a key when you are measuring, such as 1 in=2 feet.
Remember that many of the measurement problems require MORE THAN one step!
You're in a sixth grade math class!!!

ANGLES
ACUTE angles—measure less than 90 degrees
RIGHT angles—measure exactly 90 degrees
OBTUSE angles—measure greater than 90 degrees but less than 180 degrees

ANGLE MEASURES
The three angles inside a triangle ALWAYS add up to 180 degrees.

TYPES OF TRIANGLES
Trlangles can be classified by the sides:
Equilateral—all 3 sides are equal
Isosceles—two of the sides are equal
Scalene—none of the sides are equal

By their angles:
Acute—all of the angles are acute
Right—one of the angles is a right angle
Obtuse—one of the angles is an obtuse angle
Complementary (corner) angles are TWO angles that add up to 90 degrees.
Supplementary (straight) angles are TWO angles that add up to 180 degrees.

LAST FEW REMINDERS
Watch out for numbers written as words, as well as the words NOT or EXCEPT. Read carefully!
Watch out for extra information. Just because it's in the problem doesn't mean you have to use it.
Check your answers to make sure they make sense...Ask yourself, "Is my answer reasonable?"
Remember that there will be some field test questions on the test that the state has added which won't count against you, so just do your best on any questions you are unsure about how to answer.
Pace yourself...don't get stuck on one problem and waste time. Skip it and REMEMBER to come back to it later.
Go to bed early tonight and eat a good breakfast in the morning.
Most importantly, believe in yourself, because your math teacher believes in you!