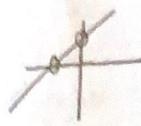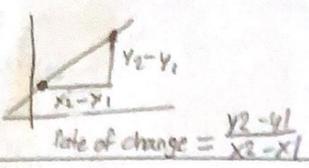| Term	Definition	Notation	Diagram/Visual
Ratio	Shows the relative sizes of two or more values.	$11:6$	Boy: $\underline{11}$ Girls: 9 Ratio $= \frac{11}{9}$ or $11:9$
Proportion	Says the two ratios (or fractions) are equal.	$a:b::c:d$ $= \frac{a}{b} = \frac{c}{d}$	$8:6$ is equal to $1:3$ $\frac{1}{3} = \frac{4}{12}$ $3:4 = 9:12$
Scale	A series of marks laid down at determinate distances, along a line.	don't have one	$\xleftrightarrow{\quad -3 \; -2 \; -1 \; 0 \; 1 \; 2 \; 3 \quad}$
Dimensional Analysis	A method for comparing the dimensions of the physical quantities occurring in a problem to find relationships between them.	How many days are in 1.00 seconds =	$\frac{1\,second}{1} \mid \frac{1\,minute}{60\,sec} \mid \frac{1\,hour}{60\,min} \mid \frac{1\,day}{24\,hours}$ $= 1.16 \times 10^{-5}$ days.
Expression	A symbol or combination of symbols representing a value, relation, or the like.	$a+b-c$	$2x+3y+6$ $\underbrace{\qquad}_{exp}$
Term	Each of the members of which an expression is composed of	any number	$5x - 8 = 17$ $\diagdown \; \diagup \; \diagup$ terms
Coefficient	A number or quantity placed before and multiplying another quantity.	$3x$ $3x$	$3x + 4y + 8$ $\diagdown$ coefficient
Factor	one of two or more numbers, algebraic expressions, that when multiplied together produce a given product.	24 $\wedge$ $2 \; 12$ $\wedge$ $6 \; 2$ $\wedge$ $2 \cdot 3$	$\begin{array}{c|c} & 24 \\ \hline 1 & 24 \\ 2 & 12 \\ 3 & 8 \\ 4 & 6 \end{array}$

monomial	An expression consisting of a single term. such as	Ab^n	$3a^2$
polynomial	An expression consisting of the sum of two or more terms.	x^2+x+1	$(x^2+7x+10)$
Distributive property	one of the properties of addition in which a factor is distributed over an expression in parentheses.	$a(b+c)=a\cdot b+a\cdot c$	$3(2+4)$ $6+12=18$
Closure Property	If a set of numbers is such that a given operation on the number result in a number for that set, then the set is closed under that operation.	$a+b=b+a$	$2+4=6$ $20+98=118$
square	To multiply a number by itself. raised to the second power.	x^2	$4^2=16$
Square root	A number or quantity that when multiplied by itself gives a given number or quantity	$\sqrt{x^2}=x$	$\sqrt{16}=4$
Rational numbers	A number that can be expressed exactly by a ratio of two integers.	$1,2,\dfrac{a}{b}$ $a,b\neq0$	$3,\dfrac{5}{6},2.5$
Irrational numbers	A number that cannot be exactly expressed as a ratio of two integers.	don't have one	$\sqrt{\dfrac{3}{2}},\ 3.1415926,\ \sqrt{2}$
Product Property of Radicals	The square root of a product is equal to the product of the square root of each of the factors	$\sqrt{ab}=\sqrt{a}\cdot\sqrt{b}$	$\sqrt{12}=\sqrt{4}\cdot\sqrt{16}$

Symmetric Property	States that an equation can be written two ways, with both sides interchanged	$a=b$ then $b=a$	$1+2=3$ then $3=1+2$
Substitution Property	One value can replace another value in an expression or equation and the value will remain the same	$x=y$ and $x=z$ then $y=z$	$30+30=40+20$ $=60=40+20$
Inequality	A statement that two quantities are unequal indicated by the symbol $\neq$.	$A>4$	$1<3, x\leq y, 0>2, x\geq 6$
Solution Set	The set of values that satisfy a given set of equations or inequalities	$y=2x-2$	$x+5<20$ $=(5,16)$
Literal Equation	An equations that involve two or more variables, like formulas	$A=\pi r^2$ $v=l\cdot w\cdot h$	$P=4S$ or $y=mx+b$
Linear Function	An equation in which the variable or variables have an exponent of one.	$(x+2=7)$ $(2x+3y=4)$	$y=mx+b$
Slope	The tangent of the angle between a given straight line and the X-axis of a system of coordinates.	$\dfrac{Rise}{Run}$	
Average Rate of Change	A measure of how much the function change per unit on average, over that interval.	$A(x)=\dfrac{f(b)-f(a)}{b-a}$	rate of change $=\dfrac{y_2-y_1}{x_2-x_1}$
Constant Rate of Change	When the ratio of the output to the input stay the same at any given point on the function.	$\Delta y/\Delta x=(y_2-y_1)/(x_2-x_1)$	
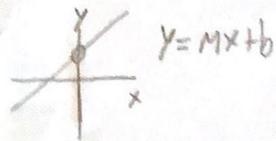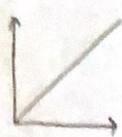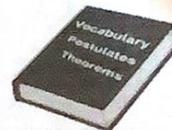
Ordered Pairs	Two quantities written in such a way as to indicate that one quantity precedes or is to be considered before the other.	$(x,y),(x,y)$	$(-4,2) , (3,5)$
X-Intercept	The point on the X-axis where a linear function intersects.	(x,y) $\uparrow$	$x=5$
Y-Intercept	The point where a graph intersects the y-axis.	(x,y) $\uparrow$	
Arithmetic Sequence	A sequence in which each term is obtained by the addition of a constant number to the preceding term.	N/A	$1,4,7,10,13$
Continuous	A single unbroken curve.	$f(x)=3x+1$	
Discrete	Having the property that every subset is an open set.	(I can't find one)	
Domain	The set of values assigned to the independent variables of a function.	$f(x)$	Range Domain
End Behaviors	Describes the behavior of the function at th "end" of the X-axis.	$f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$	
Explicit Formula	A formula we can use to find the nth term of a sequence.	$\{2,4,6,8....a\} \rightarrow$	$a_n = 2n$

Term	Definition	Notation	Diagram/Visual
Equation	An expression of a proposition, often algebraic, asserting the equality of two equations.	$a \cdot bx = c \cdot r \cdot b$	$3 \cdot 3x = 12$
Commutative Property	With addition and multiplication of numbers, you can change the order of the numbers in the problem and it will not change the answer.	$a \cdot b \cdot c = a \cdot c \cdot b$	$2 \cdot 3 \cdot 1 = 2 \cdot 1 \cdot 3$ $= 6$
Associative Property	Giving an equivalent expression when elements are grouped without change of order.	$(a + b) + c = a + (b + c)$	$(2+3) + 4 = 2(3+4)$
Distributive Property	The property that terms in an expression may be expanded in a particular way to form an equivalent expression.	$a \cdot (b + c)$ $= ab + ac$	$2(3+5) = 2 \cdot 3 + 2 \cdot 5$ $= 6 + 10$ $= 16$
Addition Property of Equality	Allows the addition of the same quantity to each side of the problem while maintaining the equality.	if $a = b$, $a + c = b + c$	$x - 2 = 3$ $x - 2 + 2 = 3 + 2$ $\underline{x = 5}$
Subtraction Property of Equality	Allows the subtraction of the same quantity for each side of an equation while maintaining the equality	$x = y$ then $x - z = y - z$	$x + 2 = 3$ $x + 2 - 2 = 3 - 2$ $x = 1$
Multiplication Property of Equality	Allows the multiplication of the same quantity to each side of an equation while maintaining the equality.	$x = y$ then $x \cdot z = y \cdot z$	$\frac{x}{2} = 3, \frac{x}{2} \cdot 2 = 3 \cdot 2$ $\underline{x = 6}$
Division Property of Equality	Allows division by the same quantity to each side of a problem while maintaining the equality.	$x = y$ then $\frac{x}{z} = \frac{y}{z}$	$5x = 15$ $\frac{5x}{5} = \frac{15}{5}$ $\underline{x = 3}$
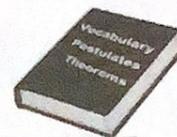
Interval Notation	A method of capturing an inequality, compound inequality, and their graph	$[a,b]$	
Linear Model	An equation that describes a relationship between two quantities that show a constant rate of change	cant find one	
Parameter	A constant or variable term in a function that determines the specific form of the function but not its general nature	$X(t)$ $Y(t)$	
Range	The set of values that the variable can take.		
Recursive Formula	Used for generating terms of an arithmetic or geometric series based on previous terms in the sequence.	cant find one	$\{1, 3, 5, 7 \ldots a_n\}$ $\rightarrow a_n = a_{n-1} + 2$
Substitution	The replacement of a term of an equation by another that is known to have the same value.	$x = b$	$x = 3$ $y = 6x - 2$ $y = (6 \cdot 3) - 2$ $y = 18 - 2$

Quotient Property of Radicals	The square root of a quotient is equal to the square roots of the dividend and divisor.	$\sqrt{\dfrac{a}{b}} = \dfrac{\sqrt{a}}{\sqrt{b}}$	$\dfrac{\sqrt{4}}{\sqrt{9}} = \sqrt{\dfrac{4}{9}}$ $= \dfrac{2}{3}$