Portales Jr. High	8th Grade 8th Grade
Cube root	The cube root of a number is a special value that, when used in a multiplication three times, gives that number.
Distributive property	The Distributive Property says that multiplying a number by a group of numbers added together is the same as doing each multiplication separately.
Function	A function is a special relationship where each input has a single output. It is often written as "f(x)" where x is the input value. Example: f(x) = x/2 ("f of x is x divided by 2") is a function, because each input "x" has a single output "x/2": • f(2) = 1 • f(16) = 8 • f(−10) = −5
Infinitely many solutions	A linear equation in one variable has infinitely much solution if any value of the variable makes the two sides of the equations equal.
Initial value	The initial value of a linear function is the value of the output when the input is 0.
Interval	What is between two points or values. Examples: • A line with definite end points (called a "Line Segment"). • A definite length of time marked by a start and finish. • The numbers between two specific values.
Linear equation	An equation that makes a straight line when it is graphed. Often written in the form: y = mx+b
Linear function	A linear function is a function whose graph is straight line. The rate of change for a linear function is constant.
Mapping diagram	A mapping diagram describes a relation by linking the input values to the corresponding output values using arrows.
Negative exponent property	A negative exponent means how many times to divide by the number. Example: 8^{-1} = 1 ÷ 8 = 1/8 = 0.125. Or many divides: Example: 5^{-3} = 1 ÷ 5 ÷ 5 ÷ 5 = 0.008. But that can be done an easier way:
No solution	No solution would mean that there is no answer to the equation. It is impossible for the equation to be true no matter what value we assign to the variable. Infinite solutions would mean that any value for the variable would make the equation true.

Nonlinear function	In mathematics, a nonlinear system of equations is a set of simultaneous equations in which the unknowns (or the unknown functions in the case of differential equations) appear as variables of a polynomial of degree higher than one or in the argument of a function which is not a polynomial of degree one.
Ordered pair	Two numbers written in a certain order. Usually written in parentheses like this: (4,5) Can be used to show the position on a graph, where the "x" (horizontal) value is first, and the "y" (vertical) value is second. Here the point (12,5) is 12 units along, and 5 units up.
Perfect cube	A perfect cube is an integer that has an integer value as the cube root. Remember that an integer is a value that corresponds to the ticks on the number line.
Perfect square	Now that we have a better understanding of the definition of cube roots, let's look at some perfect cubes. A perfect cube is an integer that has an integer value as the cube root. Remember that an integer is a value that corresponds to the ticks on the number line.
Real numbers	The type of number we normally use, such as 1, 15.82, −0.1, 3/4, etc. Positive or negative, large or small, whole numbers or decimal numbers are all Real Numbers. They are called "Real Numbers" because they are not Imaginary Numbers.
Relation	Any set of order pairs, { (x,y)}
Scientific notation	Where a number is written in two parts: First: just the digits (with the decimal point placed after the first digit), Followed by: ×10 to a power that will put the decimal point back where it should be.
Slope	How steep a straight line is.
Square root	The square root of a number is a value that, when multiplied by itself, gives the number. Example: 4 × 4 = 16, so a square root of 16 is 4. Note that (−4) × (−4) = 16 too, so −4 is also a square root of 16.

	The symbol is √ which always means the positive square root. Example: √36 = 6 (because 6 x 6 = 36)
Substitution method	In Algebra "Substitution" means putting numbers where the letters are. Example: What is x + x/2 when x=5? Put "5" where "x" is: 5 + 5/2 = 5 + 2.5 = 7.5
System of linear equations	Two or more equations working together. Example: x + y = 6 -3x + y = 2
Vertical-line test	In mathematics, the vertical line test is a visual way to determine if a curve is a graph of a function or not. A function can only have one output, y, for each unique input, x.
Y-intercept	. The Meaning of Slope and y-Intercept. in the Context of Word Problems. In the equation of a straight line (when the equation is written as "y = mx + b"), the slope is the number "m" that is multiplied on the x, and "b" is the y-intercept, where the line crosses they-axis.
Exponent property	**Properties of Rational Exponents** Let a and b be real numbers and let m and n be rational numbers. The following properties have the same names as those listed on page 330, but now apply to rational exponents as illustrated. **Property** — **Example** **1.** $a^m \cdot a^n = a^{m+n}$ — $5^{1/2} \cdot 5^{3/2} = 5^{(1/2+3/2)} = 5^2 = 25$ **2.** $(a^m)^n = a^{mn}$ — $(3^{5/2})^2 = 3^{(5/2 \cdot 2)} = 3^5 = 243$ **3.** $(ab)^m = a^m b^m$ — $(16 \cdot 9)^{1/2} = 16^{1/2} \cdot 9^{1/2} = 4 \cdot 3 = 12$ **4.** $a^{-m} = \frac{1}{a^m}, a \neq 0$ — $36^{-1/2} = \frac{1}{36^{1/2}} = \frac{1}{6}$ **5.** $\frac{a^m}{a^n} = a^{m-n}, a \neq 0$ — $\frac{4^{5/2}}{4^{1/2}} = 4^{(5/2-1/2)} = 4^2 = 16$ **6.** $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}, b \neq 0$ — $\left(\frac{27}{64}\right)^{1/3} = \frac{27^{1/3}}{64^{1/3}} = \frac{3}{4}$ When multiplying exponents – you add them When taking exponents to another power - you multiply them When taking a product to a power - you distribute the exponent to each variable

	When you have a negative exponent - you take its reciprocal When the exponent is 0, whatever number is being taken to the zero power is 1 When you divide exponents - you subtract the exponent in the numerator with the exponent in the denominator When you take a fraction to a power - you distribute the exponent to both the numerator and the denominator