

Need To Know Checklist
Foundations of Math and Pre-Calculus 10
Unit 3: Relations and Functions
Textbook: Ch 5 (pg 256-329)

Vocabulary

Relation: a rule that associates the elements of one set with the elements of another set

Arrow Diagram: used to represent a relation; the ovals show the sets, and the arrows associate elements of the first set with elements of the second set.

Function: A function is a special relationship between values: Each of its input values gives back exactly one output value. It is often written as " $f(x)$ " where x is the value you give it.

Domain: The domain of a function is the set of all possible input values (often the " x " variable), which produce a valid output from a particular function. The set of first elements of a relation.

Range: The range is the set of all possible output values (usually the variable y , or sometimes expressed as $f(x)$), which result from using a particular function. The set of second elements associated with the first elements (domain) of a relation.

Function Notation: Notation used to show the independent variable in a function; for example, $f(x)$ means that the value of the function f depends on the value of the independent variable, x .

Rate of Change: the change in one quantity with respect to the change in another quantity (slope).

Linear Relation: a relation that has a straight-line graph

Linear Function: a linear relation whose graph is not a vertical line

Vertical Intercept (also known as y-intercept): the y co-ordinate of a point where a graph intersects the y -axis.

Horizontal Intercept (also known as x-intercept): the x co-ordinate of a point where a graph intersects the x -axis

Checklist

- I understand the difference between rational and irrational numbers.
- I am able to determine if a number, radical, or fraction is rational or irrational.
- I am able to simplify perfect roots.
- I am able to simplify non-perfect roots without a calculator (using factors)
- I am able to order irrational numbers on a number line.
- I am able to express entire radicals as mixed radicals.
 - I understand the multiplication property of radicals
- I am able to turn a mixed radical back into an entire radical
- I understand the rational exponent law
 - When an exponent is a fraction, I am able to express it as a radical.
- I understand negative exponents and can use them to simplify an expression.
- I have reviewed and understand the exponent laws and can use them to simplify expressions

Exponent Law	
Note that a and b are rational or variable bases and m and n are integral exponents.	
Product of Powers	$(a^m)(a^n) = a^{m+n}$
Quotient of Powers	$\frac{a^m}{a^n} = a^{m-n}, a \neq 0$
Power of a Power	$(a^m)^n = a^{mn}$
Power of a Product	$(ab)^m = (a^m)(b^m)$
Power of a Quotient	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}, b \neq 0$
Zero Exponent	$a^0 = 1, a \neq 0$