**Unit 1.1 Real Numbers**

**Students Learning Targets (SWBAT):**

* Represent real numbers
* Order and Interval Notations
* Use basic properties of algebra
* Use properties of integer exponents to simplify expressions
* Write scientific notation

**Notes:**

**Assignment 1.1:**

**Find the decimal form for the rational number. State whether it repeats or terminates.**

1. -37/8
2. 15/99
3. -13/6
4. 5/37

**Describe and graph the interval of real numbers.**

1. x is negative.

**Use an inequality to describe the interval of real numbers.**



1. 
2.
3. x is between -1 and 2

**Use interval notation to describe the interval of real number.**

1. 3 and less than or equal to 4.

**Convert to inequality and interval notation. State whether the interval is bounded or unbounded.**

**Use both inequality and interval notation to describe the set of numbers.**

1. Bill is at least 29 years old.
2. No item at Sarah’s Variety Store costs more than $2.00.
3. Salary raises at the State University of California at Chico will average between 2% and 6.5%.

**Use the distributive property to write the factored form or the expanded form of the given expression.**

**Identify which algebraic property or properties are illustrated by the equation.**

**Simplify the expression.**

**The following data gives the revenues in thousands of dollars for public elementary and secondary schools for the 2003-04 school year.**

|  |  |
| --- | --- |
| **Source** | **Amount (in $1000)** |
| Federal | 36,930,339 |
| State | 221,802,107 |
| Local and Intermediate | 193,175,805 |
| **Total** | **45,908,251** |

**Write the amount of revenue in dollars obtained from the source in scientific notation.**

1. Federal
2. State
3. Local and Intermediate
4. Total

**Unit 1.2 Linear Equations and Inequalities**

**Students Learning Targets (SWBAT):**

* Solve linear equations and linear inequalities.
* Solve for a variable in a linear equation

**Notes:**

**Assignment 1.2**

**Determine if it is a solution for the given value of x.**

**Solve the equation.**

**Solve the equation. Support your answer with a calculator.**

**Solve the inequality.**

1. Explain how the second equation was obtained from the first.
2. The formula for the perimeter *P* is a rectangle is . Solve this equation for *W*.
3. The formula for the are A of a trapezoid is Solve the equation for
4. The formula for Celsius temperature in terms of Fahrenheit temperature is Solve the equation for *F*.

**Unit 1.3 Solving Equations Graphically, Numerically, and Algebraically**

**Students Learning Targets (SWBAT):**

* Solve equations graphically
* solve quadratic equations
* approximate solutions of equations graphically
* solve equations by finding intersections

**Notes:**

**Assignment 1.3**

**Solve the equation graphically by finding x-intercepts. Confirm by suing factoring to solve the equation.**

**Solve the equation by extracting square roots.**

**Solve the equation using the quadratic formula.**

**Solve the equation graphically by finding x-intercepts.**

**Solve the equation graphically by finding intersections.**

**Graph the inequality.**

**Solve the system of inequalities.**

1. The equation defines y as two implicit functions of x. Solve for y to find the two functions and draw the graph of the equations.

**Unit 1.4 Radicals and Rational Expressions**

**Students Learning Targets (SWBAT):**

* Simplify radical expressions
* Rationalize the denominator
* Manipulate rational exponents

**Notes:**

**Assignment 1.4:**

**Find the indicated real roots.**

1. Square roots of 81
2. Fourth roots of 81
3. Cube roots of 64
4. Fifth roots of 243
5. square roots of 16/9
6. Cube roots of -27/8

**Evaluate the expression without using a calculator.**

**Simplify by removing factors from the radicand.**

**Rationalize the denominator.**

**Convert to exponential form.**

**Convert to radical form.**

**Simplify the exponential expression.**

**Simplify the radical expression.**

**Unit 1.5 Inverse Functions**

**Students Learning Targets (SWBAT):**

* **Find inverse functions**
* **Determine if a function has an inverse using it’s graph**

**Notes:**

**Assignment 1.5:**

**Find the equation for the inverse relation.**

**Graph the function *f*. Then use the graph to determine whether the inverse of *f* is a function.**

1. The maximum hull speed *v* (in knots) of a boat with a displacement hull can be approximated by where *l* is the length (in feet) of the boat’s waterline. Find the inverse of the model. Then find the waterline length needed to achieve a maximum speed of 7.5 knots.
2. The body surface area A (in square meters) of a person with a mass of 60 kilograms can be approximated by the model where *h* is the person’s height (in centimeters). Find the inverse of the model. Then estimate the height of a 60 kilogram person who has a body surface area of 1.6 square meters.