**Chapter 5: Radical Expressions & Equations**

1. Express  as an entire radical.
2. Express  as a simplified mixed radical.
3. Order the set of numbers from least to greatest.



1. Simplify each expression. Identify any restrictions on the values for the variables.

**a)**  **b)** 

1. Simplify. Identify any restrictions on the values of the variable in part c).

**a)**   **b)** 

**c)** 

1. Rationalize each denominator.

**a)**  **b)**  **c)** 

1. Solve the radical equation  . Verify your anwer(s).
2. On a children’s roller coaster ride, the speed in a loop depends on the height of the hill the car has just come down and the radius of the loop. The velocity, *v*, in feet per second, of a car at the top of a loop of radius *r,* in feet, is given by the formula  , where *h* is the height of the previous hill, in feet.

**a)** Find the height of the hill when the velocity at the top of the loop is 20 ft/s and the radius of the loop is 15 ft.

**b)** Would you expect the velocity of the car to increase or decrease as the radius of the loop increases? Explain your reasoning.

**Chapter 6: Rational Expressions & Equations**

1. Simplify each expression. Identify any non-permissible values.

**a)**  **b)**  **c)** 

**d)**   **f)** 

1. Determine the sum or difference. Express answers in lowest terms. Identify any non-permissible values.

**a)**   **b)** 

**c)** 

1. Sandra simplified the expression  to . She stated that they were equivalent expressions. Do you agree or disagree with Sandra’s statement? Explain.
2. Mrs. Baldwin marks 1 set of tests in 2 hours. If she and Mr. Suderman work together, they can mark 1 set of tests in only 2/3 of an hour. How long does Mr. Suderman take if he marks the set of tests alone?