

Name:

Unit 7 Review: Rational Expressions

- Be sure to show all of your work

- Check your answers to each round before moving on to the next one

Round 1

Find the Unit Rate

1. \$14.40 for 24 cans of dog food
2. 38 hours of work earned you \$765.70
3. 419.2 miles on 16 gallons of gas
4. Took 6.5 hours to bike 117 miles

Using Percents $\left(\frac{\text{is}}{\text{of}} = \frac{\%}{100}\right)$

1. What is 30% of 700 miles?
2. 48 is what percent of 160?
3. 26 is 40% of what number?
4. \$14 is 25% of what amount of money?

Round 2

Simplify the rational expressions

1. $\frac{2x^2-6x}{6x^2}$

2. $\frac{x^2-4}{x^2-x-2}$

3. $\frac{x^2+4x+3}{x^2+x}$

4. $\frac{6+2x}{x^2+5x+6}$

What numbers make the following expressions undefined? (Remember, you can't divide by zero)

5. $\frac{2}{x-4}$

6. $\frac{x+2}{x^2+2x-8}$

Round 3

Multiply or Divide the Rational Expressions

Remember, when you **divide**, you multiply by the _____

1.
$$\frac{3x^3}{4x} \cdot \frac{8x^2}{15x^4}$$

2.
$$\frac{x}{3x^2-9x} \cdot \frac{x-3}{2x^2+x-3}$$

3.
$$\frac{4n}{n+5} \div \frac{n-9}{n+5}$$

4.
$$\frac{7x}{x^2+5x+4} \cdot (x+4)$$

5.
$$\frac{x^2-9}{4x^2} \div (x-3)$$

$$6. \quad \frac{x}{x^2-5x+6} \div \frac{x^2-x}{x^2-9}$$

$$7. \quad \frac{x^2-1}{x} \cdot \frac{2x}{3x-3}$$

$$8. \quad \frac{\frac{x-2}{2x}}{\frac{x-2}{x+5}}$$

$$9. \quad (2x-3) \cdot \frac{2x+1}{2x^2-x-3}$$

Round 4

Add or Subtract the Rational Expressions. Make sure you find a common denominator first.

1. $\frac{x^2}{2x} + \frac{x+3}{2x}$

2. $\frac{2x}{x-1} - \frac{5x}{x-1}$

3. $\frac{2x}{x+1} + \frac{5}{x-2}$

4. $\frac{x-3}{2x+4} - \frac{x}{x+2}$

5. $\frac{x+3}{x-1} - \frac{x+2}{x-4}$

6. $\frac{3}{5x} - \frac{5x}{4}$

Round 5

Solve the proportions

1. $\frac{16}{4} = \frac{12}{x}$

2. $\frac{w+4}{2w} = \frac{-5}{6}$

3. $\frac{10}{x} = \frac{2x}{5}$

4. $\frac{4}{2x} = \frac{7}{3}$

5. $\frac{r+4}{3} = \frac{r}{5}$

6. $\frac{8}{x+2} = \frac{3}{x-1}$

7. $\frac{10}{x-5} = \frac{x+3}{2}$

8. $\frac{2}{6x+1} = \frac{x}{1}$