Algebra II – Day 34
Formative Ticket
Rational Expression Review

Vocabulary

Choose the correct term from the box to complete each sentence.

Vocabulary
extraneous solution
rational equation
rational expression

1. A(n) ___?___ sets two expressions equal to one another, where at least one expression involves a fraction that has a numerator and denominator that are polynomials.
2. A(n) ___?___ is a value that is identified as an excluded value in the given equation.
3. A(n) ___?___ is a fraction in which the numerator and the denominator are polynomials.

Concepts and Skills

Find each product. Identify any variable values for which the product is undefined.

4. $\frac{-18xy}{15z} \cdot \frac{35z^2}{24x^2y}$
5. $\frac{20p^2}{21rs} \cdot \frac{7q^2r^3}{4p^2s}$
6. $\frac{x+9}{x-1} \cdot \frac{x^2+9x-10}{x^2+8x-9}$
7. $\frac{x-8}{x^2+16x+64} \cdot \frac{x^2-64}{x^2-16x+64}$

Find each quotient. Identify any variable values for which the quotient is undefined.

8. $\frac{8z^2}{5xy} \div \frac{4z}{x^2y}$
9. $\frac{x+9}{9x^2} \div \frac{x^2-9x}{x^2-81}$
10. $\frac{x}{x-4} \div \frac{x^2-3x}{x^2-x-12}$
11. $\frac{8x}{x-6} \div \frac{x^2+6x}{x^2-3x-18}$

MP **Use Tools** **Find each sum or difference. Write each answer in simplest form and identify any values of x for which the sum or difference is undefined. State what strategy and tool you will use to answer the question, explain your choice, and then find the answer.**

12. $\frac{-1}{x+2} + \frac{x+1}{x+4}$
13. $\frac{5}{x+3} - \frac{4}{x^2+3x}$
14. $\frac{1}{x-2} + \frac{1}{x+2}$
15. $\frac{2x}{x^2+5x+4} - \frac{2}{x+4}$

Solve each rational equation [redacted]

16. $\frac{1}{x-4}+6=7$

17. $\frac{1}{x+5}=2$

18. $\frac{1}{2x-3}=4$

19. $\frac{2}{x+5}+1=0$

Solve each rational equation algebraically.

20. $\frac{-1}{2x}=\frac{x-1}{x-3}$

21.. $\frac{x}{x^2-x}=\frac{3-x}{x^2-x}$

22. $\frac{x+1}{x+3}=\frac{2}{x}$

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

24. Explain the relationship between the set of rational expressions and the set of rational numbers with respect to the four basic arithmetic operations.