APR.6/7 Simplifying Rational Expressions (Simplify/Add/Subtract/Multiply/Divide)

(APR.6)Rewrite simple rational expressions in different forms and (APR.7) understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

1) Simplify the expression. State any restrictions on the variables. $\dfrac{2x^2-3x-2}{x^2-5x+6}$

2) Multiply. $\dfrac{2x^2+7x+3}{x-4}\cdot\dfrac{x^2-16}{x^2+8x+15}$. State any restrictions on the variables.

3) Perform the operation. $\dfrac{3y-12}{2y+4}\div\dfrac{6y-24}{4y+8}$ State any restrictions on the variables.

4)Perform the indicated operation $\dfrac{2}{x-2}-\dfrac{5}{x+3}$.

5)Perform the indicated operation $\dfrac{x+1}{x^2-3x-4}+\dfrac{x-3}{x-2}$.

6)Simplify $\dfrac{3x}{x-2}+\dfrac{x}{2x+4}+\dfrac{5}{x}$.

7)Simplify $\dfrac{1}{x-4} - \dfrac{x}{x+2} + \dfrac{x^2}{x-1}$.

8) Write 3 rational expressions that would simplify to $x-3$.

9)Simplify $\dfrac{2}{x} + \dfrac{5}{3}$.

10)Simplify $\dfrac{\dfrac{x^2-121}{x^2+x-20}}{\dfrac{x^2-10x-11}{x^2-25}}$.

11)Write a fraction that is equivalent to $\dfrac{3}{x} + \dfrac{1}{x+1}$.