

Show all set up and work for full points.

1. Explain step-by-step, how to simplify the rational expression: $\frac{3x+4}{3x} - \frac{2x+3}{2x}$, and then simplify the expression.

2. Explain how you find the LCD of rational expressions?

For problems 3-17, simplify each expression.

3. $\frac{x+11}{3x-5} + \frac{x-21}{3x-5}$

4. $\frac{1}{x^2-4} + \frac{6}{x+2}$

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

6. $\frac{-5y}{2y-1} - \frac{y-3}{2y-1}$

7. $\frac{5x}{x^2-9} + \frac{2}{x+4}$

8. $\frac{5y+2}{xy^2} + \frac{2x-4}{4xy}$

9.
$$\frac{y}{2y+4} - \frac{3}{y+2}$$

10.
$$\frac{-3x}{x^2-9} + \frac{4}{2x-6}$$

11.
$$\frac{5x}{x^2-x-6} + \frac{4}{x^2+4x+4}$$

12.
$$\frac{x+4}{2x^2-2x} - \frac{5}{2x-2}$$

13.
$$\frac{x-2}{x+8} - \frac{x-2}{x^2+6x-16}$$

14.
$$\frac{x}{x-3} - \frac{3}{x+4} + \frac{7}{x^2+x-12}$$

15.
$$\frac{\frac{4}{x+2}}{\frac{x+2}{3}} - \frac{3}{x+2}$$

16.
$$x^2 + \frac{2x}{3x-5}$$

17.
$$\frac{x+1}{(x-1)^2} + \frac{x-2}{x-1}$$

18. Challenge Problem: Multiply the expressions.

$$\left(\frac{3}{x-4} + \frac{x^2-4x}{8x^2-128}\right) \div \left(\frac{3x+18}{x^2+2x-24} - \frac{x}{8}\right)$$