

**EXTRA PRACTICE 14****Addition And Subtraction Of Rational Expressions**

Use after Sections 6.3 and 6.4

Name \_\_\_\_\_

Example: Do this calculation.

$$\begin{aligned}
& \frac{5x}{x^2 - 3x - 4} - \frac{2x}{x^2 - 6x + 8} \\
&= \frac{5x}{(x-4)(x+1)} - \frac{2x}{(x-4)(x-2)}, \text{ LCM} = (x-4)(x-2)(x+1) \\
&= \frac{5x}{(x-4)(x+1)} \cdot \frac{x-2}{x-2} - \frac{2x}{(x-4)(x-2)} \cdot \frac{x+1}{x+1} \\
&= \frac{5x(x-2) - 2x(x+1)}{(x-4)(x-2)(x+1)} \\
&= \frac{5x^2 - 10x - 2x^2 - 2x}{(x-4)(x-2)(x+1)} \\
&= \frac{3x^2 - 12x}{(x-4)(x-2)(x+1)} \\
&= \frac{3x(x-4)}{(x-4)(x-2)(x+1)} \\
&= \frac{3x}{(x-2)(x+1)}
\end{aligned}$$

Add or subtract. Simplify.

1.  $\frac{x-1}{x+3} + \frac{x+7}{x+3}$  \_\_\_\_\_

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

3.  $\frac{a^2}{a-4} + \frac{16}{4-a}$  \_\_\_\_\_

4.  $\frac{4y}{y^2 - y - 2} - \frac{5y}{y^2 + y - 6}$  \_\_\_\_\_

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

6.  $\frac{4}{a+2} + \frac{a+1}{a^2-4} - \frac{3}{a-2}$  \_\_\_\_\_

7.  $\frac{y-5}{3y+9} - \frac{y+1}{2y+6}$  \_\_\_\_\_

8.  $\frac{5}{a} + \frac{3}{-a}$  \_\_\_\_\_

9.  $\frac{x+1}{x^2 - 7x + 10} + \frac{3}{x^2 - x - 2}$  \_\_\_\_\_

10.  $\frac{b-3}{b^2 - 9} + \frac{b+3}{b^2 + 6b + 9}$  \_\_\_\_\_

**EXTRA PRACTICE 14 (continued)**  
**Addition And Subtraction Of Rational Expressions**  
Use after Sections 6.3 and 6.4

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11.  $\frac{a-5}{a^2-5a} + \frac{a+5}{a^2-25}$  \_\_\_\_\_

12.  $\frac{y+7}{y^2-49} - \frac{3y+1}{49-y^2}$  \_\_\_\_\_

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

14.  $\frac{b+3}{2b+6} - \frac{2}{3b}$  \_\_\_\_\_

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

16.  $\frac{5}{x^2+3x} - \frac{4}{x^2-x-12}$   
\_\_\_\_\_

17.  $\frac{a}{1-a} + \frac{3a}{a+1} - \frac{5}{a^2-1}$   
\_\_\_\_\_

18.  $\frac{8x+4}{2x^2-9x-5} + \frac{x-1}{x-5}$   
\_\_\_\_\_

19.  $\frac{y-5}{6y} - \frac{4y+1}{y}$  \_\_\_\_\_

20.  $\frac{9x}{x^2-81} + \frac{3x}{x+9}$  \_\_\_\_\_