LESSON 8.5 # Practice

For use with pages 582–588

Find the least common denominator.

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

$(x-3)(2x+3)$

2. $\frac{8}{x+2}, \frac{2x}{x-1}$

$(x+2)(x-1)$

3. $\frac{3x}{x-2}, \frac{2}{x^2-4} \rightarrow (x-2)(x+2)$

$(x-2)(x+2)$

4. $\frac{x}{3x(x+3)}, \frac{1}{x^2-9}, \frac{4}{x(x-3)}$

$3x(x+3)\ (x+3)(x-3)\ x(x-3)$

$3x(x+3)(x-3)$

Perform the indicated operation and simplify.

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

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

$\frac{x}{(x-3)(x-1)} + \frac{5}{(x-3)} \cdot \frac{(x-1)}{(x-1)}$

$\frac{x+5(x-1)}{(x-3)(x-1)} = \frac{x+5x-5}{x^2-4x+3} = \frac{6x-5}{x^2-4x+3}$

7. $\frac{3x}{x-5} - \frac{2}{x^2-25}$

$\frac{(x+5)3x}{(x+5)(x-5)} - \frac{2}{(x+5)(x-5)}$

$\frac{3x^2+15x-2}{x^2-25}$

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

$\left[\frac{3}{x} \cdot \frac{x(x-2)}{x(x-2)}\right] + \left[\frac{2}{x-2} \cdot \frac{x^2}{x^2}\right] - \left[\frac{2}{x^2} \cdot \frac{(x-2)}{(x-2)}\right]$

$\frac{3x(x-2)+2x^2-2(x-2)}{x^2(x-2)}$

$\frac{3x^2-6x+2x^2-2x+4}{x^3+2x^2} = \frac{5x^2-8x+4}{x^3+2x^2}$

9. $\frac{x}{x+3} - \frac{3}{x+2} - \frac{1}{x^2+5x+6}$

$\left[\frac{x}{x+3} \cdot \frac{(x+2)}{(x+2)}\right] - \left[\frac{3}{x+2} \cdot \frac{(x+3)}{(x+3)}\right] - \left[\frac{1}{(x+2)(x+3)}\right]$

$\frac{x(x+2)-3(x+3)-1}{(x+2)(x+3)}$

$\frac{x^2+2x-3x-9-1}{x^2+5x+6}$

10. $\frac{2x}{x^2+4x+4} + \frac{x-1}{x(x+2)}$

$\left[\frac{2x}{(x+2)(x+2)} \cdot \frac{x}{x}\right] + \left[\frac{(x-1)}{x(x+2)} \cdot \frac{(x+2)}{(x+2)}\right]$

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

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

$$\frac{x^2 - x - 10}{x^2 + 5x + 6}$$