LESSON 8.4

Practice

For use with pages 573–581

Simplify the rational expression, if possible.

1. $\frac{3x-3}{6} = \frac{3(x-1)}{6} = \frac{(x-1)}{2}$

2. $\frac{(x+7)(x+9)}{(x-9)(x+7)} = \frac{x+9}{x-9}$

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

4. $\frac{x^2+4x-5}{x^2-25} = \frac{(x+5)(x-1)}{(x+5)(x-5)} = \frac{x-1}{x-5}$

5. $\frac{x^2+4x}{x^2-2x-24} = \frac{x(x+4)}{(x-6)(x+4)} = \frac{x}{x-6}$

6. $\frac{x^2+10x-11}{x^2+7x-8} = \frac{(x+11)(x-1)}{(x+8)(x-1)} = \frac{x+11}{x+8}$

Multiply the expressions. Simplify the result.

7. $\frac{6x^3y}{xy^2} \cdot \frac{3x^2y}{8x^3} = \frac{18x^5y^2}{8x^4y^2} = \frac{9x}{4}$

8. $\frac{44x^7y^4}{5xy^2} \cdot \frac{12xy^5}{22x^5y^3} = \frac{24x^8y^9}{5x^6y^6} = \frac{24x^2y^4}{5}$

9. $\frac{7x(x-2)}{(x+1)(x-6)} \cdot \frac{(x+1)}{2\cancel{1}0(x-2)(x-1)}$

$\frac{x}{2(x-6)(x-1)} = \frac{x}{2(x^2-7x+6)}$

10. $\frac{x^2+4x+3}{x^2+5x+6} \cdot \frac{x^2-3x-10}{x^2+x}$

$\frac{(x+3)(x+1)}{(x+3)(x+2)} \cdot \frac{(x-5)(x+2)}{x(x+1)}$

$$\frac{x}{2(x-6)(x-1)} = \frac{x}{2(x^2-7x+6)}$$

$$= \boxed{\frac{x}{2x^2-14x+12}}$$

11. $\dfrac{x^2-9x+20}{x^2+9x+14} \cdot \dfrac{x^2+6x+8}{x^2-x-20}$

$$\frac{(x-5)(x-4)}{(x+7)(x+2)} \cdot \frac{(x+4)(x+2)}{(x-5)(x+4)}$$

$$\boxed{\frac{x-4}{x+7}}$$

12. $\dfrac{x^3-9x}{x^2+6x+9} \cdot \dfrac{x^3+3x^2}{x-3}$

$$\frac{(x+3)(x+1)}{(x+3)(x+2)} \cdot \frac{(x-5)(x+2)}{x(x+1)}$$

$$\boxed{\frac{x-5}{x}}$$

$$\frac{x(x^2-9)}{(x+3)(x+3)} \cdot \frac{x^2(x+3)}{(x-3)}$$

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