

**Simplify Rational Expressions**

*Simplify. State any restrictions on the variable.*

1.  $\frac{p^2-4p-32}{p+4}$

2.  $\frac{x^2+3x-28}{x^2-49}$

3.  $\frac{2m^2+10m-48}{8m+64}$

**Multiply/Divide Rational Expressions**

*Simplify. Remember to keep, change, flip when dividing.*

4.  $\frac{z^2}{z+1} \cdot \frac{z^2+3z+2}{z^2+3z}$

5.  $\frac{c+1}{c-5} \div \frac{c-2}{c^2-7c+10}$

6.  $\frac{x^2-16}{x^2+5x+6} \div \frac{x^2+5x+4}{x^2-2x-8}$

7.  $\frac{b^2}{b+9} \cdot \frac{b^2+15b+54}{b^2-4b}$

### **Add/Subtract Rational Expressions**

*Simplify. Remember to get a common denominator first.*

8.  $\frac{3}{m+5} + \frac{8}{m^2-25}$

9.  $\frac{k^2-2k-8}{k^2+k-2} - \frac{6}{k-1}$

10.  $\frac{w^2+2w-24}{w^2+w-30} + \frac{8}{w-5}$

11.  $\frac{3}{x+7} - \frac{4}{x-8}$

### **Solve Rational Equations**

*Solve. Remember to check for extraneous solutions.*

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

13.  $\frac{v^2}{v-4} = \frac{16}{v-4}$

14.  $\frac{a}{a^2-36} + \frac{2}{a-6} = \frac{1}{a+6}$

## Graphs of Rational Functions

Identify holes, vertical asymptotes, horizontal asymptotes, and domain of the rational functions. Then graph the function.

$$15. f(x) = \frac{3x^2+21x}{x^2+5x-14}$$

$$16. f(x) = \frac{4}{(x+3)(x-1)}$$

$$17. f(x) = \frac{x^2-9x+20}{4x^2-12x-40}$$

Hole:	
VA:	
HA:	
Domain:	

Hole:	
VA:	
HA:	
Domain:	

Hole:	
VA:	
HA:	
Domain:	

