

Simplify each of the following and state restrictions on the variables:

**Example 1:**

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

$$= \frac{(x+2)(x+5)}{(x+5)(x-2)} \quad x \neq 2, -5$$

$$= \frac{x+2}{x-2}$$

$$x \neq 2, -5$$

**Example 2:**

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

$$= \frac{(m-3)^2}{(m-3)(m+3)} \quad m \neq 3, -3$$

$$= \frac{m-3}{m+3}$$

$$m \neq 3, -3$$

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

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

3.  $\frac{x+y}{(x-y)(x+y)}$

4.  $\frac{a+b}{b+a}$

5.  $-\frac{b-a}{b-a}$

6.  $-\frac{b+a}{-(b+a)}$

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

8.  $\frac{(x-4)(x+3)}{(x-3)(x+3)}$

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

10.  $\frac{(x-5)(x-4)}{2(x-5)}$

11.  $\frac{(m-n)(m+n)}{-(m-n)}$

12.  $\frac{(x-4)(x-1)}{3(x-4)}$

13.  $\frac{x+5}{(x+5)(x-5)}$

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

15.  $\frac{3a(a-2)}{(a-2)(a-2)}$

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

17.  $\frac{-3(m-5)}{(m+7)(m-5)}$

18.  $\frac{x+y}{(x-y)(x+y)}$

19.  $\frac{(2x+1)(x-4)}{(x-3)(x-4)}$

20.  $\frac{x+1}{(x-1)(x+1)}$

21.  $\frac{(x+3)(x-1)}{(x-1)(x+4)}$

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

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

24.  $\frac{(x-4)(x-3)}{(x-4)(x+4)}$

25.  $\frac{(x-5)(x+4)}{(5-x)(3+x)}$

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

27.  $(x+1) \left[ \frac{2}{x+1} \right]$