Simplifying Fractions

Procedure

1. **Factor both numerator and denominator**
2. **Divide our common factors**

Example $\boldsymbol{Simplify}\ \frac{x^2+7x+12}{x^2-9}$

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

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

Simplify the following

A	B	C
1. $\frac{x^2-4}{x^2+x-6}$	$\frac{y^2-1}{y^2+3y+2}$	$\frac{x^2-3x-4}{x^2+5x+4}$
2. $\frac{x^2-6x+9}{x^2+2x-15}$	$\frac{x^2+2x-15}{x^2-x-6}$	$\frac{x^2-8x-9}{x^2-9x-10}$
3. $\frac{x^2+13x+22}{x^2-9x-22}$	$\frac{x^2+4x-21}{2x^2-5x-3}$	$\frac{w^4-16x^8}{2w^2-8x^4}$

4.

$$\frac{x^5 - x}{x^{10} - x^2} \qquad \frac{6ab(4c^2 - d^{2)}}{6bc + 3bd} \qquad \frac{5 - 80c^2}{10a + 40ac}$$

5.

$$\frac{16x^3}{4x^2 - 8xy} \qquad \frac{6a^2 + 2ab}{9a^2 - b^2} \qquad \frac{b^3 - bc^2}{bc(b - c)^2}$$

6.

$$\frac{16x^2 - 8x + 1}{4x^2 + 11x - 3} \qquad \frac{2x^2 + x - 3}{6x^2 + 5x - 6} \qquad \frac{28 - 4x}{21y - 3xy}$$