

## 6.6 Solving Rational Equations

$$1. \frac{9}{3x} = \frac{4}{x+2}$$

$$9x + 18 = 12x$$

$$\boxed{x=6}$$

$$2. \frac{8}{3x-2} = \frac{2}{x-1}$$

$$8x - 8 = 6x - 4$$

$$\boxed{x=2}$$

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

$$x^2 - x - 6 = x^2 + 5x$$

$$\boxed{x=-1}$$

$$4. \frac{4(x-4)}{x^2 - 2x - 8} = \frac{4}{x+4}$$

common, use +

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

$$4x - 16 = 4x - 8$$

$$\boxed{\text{no solution.}}$$

use -

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

$$4x + 16 = 4x + 8$$

$$\boxed{\text{no solution}}$$

Oh well. :-)

$$5. \frac{2}{3x} + \frac{1}{6} = \frac{4}{3x}$$

$$4 + x = 8$$

$$\boxed{x=4}$$

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

$$2x + x - 3 = x^2 - x$$

$$0 = x^2 - 4x + 3$$

$$x=3 \quad \boxed{x=1}$$

nope,