

10/3/18

Multiplication

$$\frac{(x^2 - 3x - 10)(x + 5)}{(x^2 + 10x + 25)(x^2 - 4)} = \frac{(x-5)(x+2)(x+5)}{(x+5)(x+5)(x+2)(x-2)}$$
$$= \frac{(x-5)}{(x+5)(x-2)}$$

$$\frac{9y-36}{4y+12} \div \frac{4-y}{3y+9} = \frac{9y-36}{4y+12} \left( \frac{3y+9}{4-y} \right)$$

$$6 - \frac{5}{x+3} = \frac{6(x+3) - 5}{(x+3)} = \frac{6x + 18 - 5}{x+3} = \frac{6x + 13}{x+3}$$

$$\frac{3}{x-1} - 5 = \frac{3 - 5(x-1)}{x-1} = \frac{3 - 5x + 5}{x-1} = \frac{8 - 5x}{x-1}$$

$$\frac{1}{x^2 - 2x - 3} - \frac{x}{x^2 - 9x + 18} = \frac{1}{(x-3)(x+1)} - \frac{x}{(x-6)(x-3)}$$
$$= \frac{1 \cdot (x-6)}{(x-3)(x+1)(x-6)} = \frac{x(x+1)}{(x-3)(x+1)(x-6)}$$

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

$$\frac{1/2}{3/5} = \frac{1}{2} \left( \frac{5}{3} \right) = \frac{5}{6}$$

$$\frac{x^2-4}{x^2+6x+9} \div \frac{x^2+7x+10}{x^2-9}$$

$$= \frac{x^2-4}{x^2+6x+9} \left( \frac{x^2-9}{x^2+7x+10} \right)$$

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