

11.1 Proportions

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$$\frac{a}{b} = \frac{c}{d}$$

$a, b, c, \text{ \& } d$ can be ...
Numbers, Variables, or Polynomials

Where a & d are called extremes
and b & c are called Means

Cross Multiply

$$a \cdot d = b \cdot c$$

extremes = means

ex1) $\frac{5}{2} = \frac{60}{x}$

$$5 \cdot x = 2 \cdot 60$$

$$\frac{5x}{5} = \frac{120}{5}$$

$$\underline{\underline{x = 24}}$$

ex2)

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

If it is larger
then a Monomial
You Must
Please... Put
it in ().

$$3 \cdot 4 = x \cdot (x+1)$$

Quadratic...

$$12 = x^2 + x$$

So... Set

$$-12 = x^2 + x - 12 \quad \text{Equal to zero!}$$

$$0 = x^2 + x - 12$$

1.12
2.6
3.4

$$0 = (x-3)(x+4)$$

Factoring

$$x-3=0 \quad \text{or} \quad x+4=0$$

$$+3 \quad +3 \quad \downarrow \quad -4 \quad -4$$

$$x=3 \quad \text{or} \quad x=-4$$

Zero-Product Prop.

ex 3)

$$\frac{(y^2-9)(y-3)}{(y+3)2}$$

FOIL.

Dist. Prop.

$$(y^2-9)2 = (y+3)(y-3)$$

$$2y^2 - 18 = y^2 - 3y + 3y - 9$$

$$-y^2 + 9 = -y^2 + 9$$

$$y^2 - 9 = 0$$

$$(y+3)(y-3) = 0$$

$$y+3=0 \quad \text{or} \quad y-3=0$$

$$-3-3 \quad \downarrow \quad +3+3$$

$$y=-3 \quad \text{or} \quad y=3$$

O.T.L.

① Pg 636: 21-35 (all)