6.2 Proportions

Mar. 08, 2007

Proportions: 2 equivalent Ratios.

└ Fraction

$$\frac{20}{40} \overset{\div 10}{\underset{\div 10}{=}} \frac{2}{4} \overset{\div 2}{\underset{\div 2}{=}} \frac{1}{2}$$

-

A proportion is an equation of the form

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

which states 2 Ratios are equivalent (equal)

Means + Extremes

$b + c$ $\qquad$ $a + d$

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

$$ad = bc$$

cross multiplication

ad: Extremes

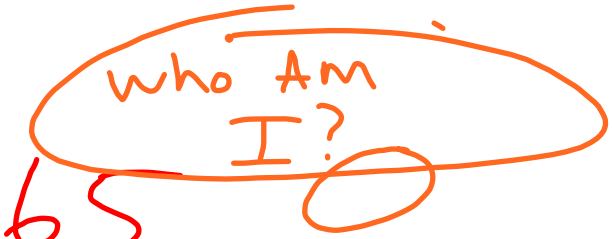
bc: Means

The product of the Means is equal to the product of the Extremes

ex 1)

$$\frac{x}{2} = \frac{65}{26}$$

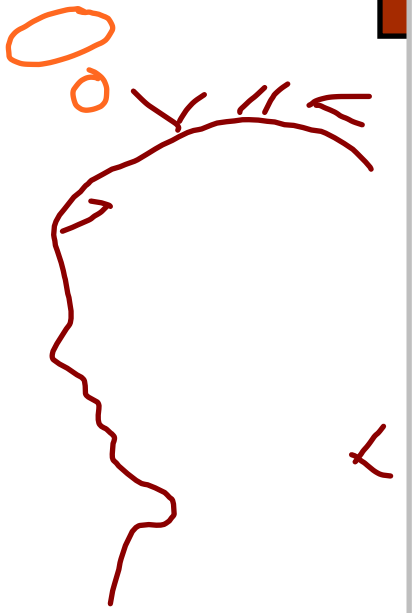
*Goal: is to get 'x' by Itself!



$$x \cdot 26 = 2 \cdot 65$$

$$\frac{26x}{26} = \frac{130}{26}$$

$$x = 5$$



ex2)

$$\frac{5}{x+3} = \frac{3}{2x-8}$$

Hint: If there is a plus or minus sign... wrap them in ( )

$$5\cdot(2x-8) = 3\cdot(x+3)$$

$$10x - 40 = 3x + 9$$

$$-3x \quad\quad -3x$$

$$7x - 40 = 9$$

$$+40 \quad\quad +40$$

$$\frac{7x}{7} = \frac{49}{7}$$

$$x = 7$$

ex2)

$$\frac{5}{x+3} = \frac{3}{2x-8}$$

$$\frac{5}{(7)+3} = \frac{3}{2(7)-8}$$

$$\frac{1}{2}\,\frac{5}{10} = \frac{3}{6}\,\frac{1}{2}$$

Title: Feb 28 - 7:17 PM (5 of 7)

ex3) Find 2 Numbers that are in the ratio 3:4, If one is 17 more than the other!

Set up a Por.

1st => x

2nd => $x+17$

$$\frac{3}{4} = \frac{x}{(x+17)}$$

$$3 \cdot (x+17) = 4 \cdot x$$

$$3x + 51 = 4x$$

$$-3x \quad -3x$$

$$51 = x$$

$$\frac{3}{4} = \frac{51}{51+17}$$

$$\frac{51}{68}$$

O.T.L.

① Pg 181 : Written

Due In 5 min

1, 6, ~~10~~, 11, 15, 16, 13, 17-19(o)