

6.6) Rational Equation Word Problems

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{z} \quad \text{solve for } x$$

3 terms so use the LCD

$$\text{LCD} = xyz$$

$$\frac{1}{x} + \frac{1}{x} = \frac{1}{z}$$

$$yz + xz = xy$$

$$-xz \quad -xz$$

$$yz = xy - xz$$

$$yz = x(y-z)$$

$$LCD = xyz$$

denominator is eliminated

$$x = \frac{yz}{y-z}$$

Let's do Ex 2 on p. 382

$$\frac{9-n}{19+n} = \frac{1}{3}$$

2 terms:

① You can cross-multiply. This is a proportion.

② or you can use LCD

$$\frac{9-n}{19+n} = \frac{1}{3}$$

$$3(9-n) = 1(19+n)$$

$$27-3n = 19+n$$

$$-4n = -8$$
$$n = 2$$

check it

$$\frac{9-2}{19+2} = \frac{1}{3}$$

$$\frac{7}{21} = \frac{1}{3} \checkmark$$

EX 3 p. 383

Put like across from like

$$\frac{7}{25} = \frac{x}{36000}$$

25 and 36,000 are the totals.

6.7 Variation

$y = 3x$ y is a constant multiple of x .

will directly vary as x changes.

direct variation: $y = kx$

$$y = 3x$$

$$y = \frac{1}{2}x$$

$k = \text{constant of variation}$

Mr Kaufman's version:

direct variation is slope
intercept form without the b .

$y = mx$ k is used instead of m
but acts like slope.

Ex 1 y is 5 when x is 30.

What is k , the constant of variation?

$y = kx$ plug in x and y

$$5 = k(30)$$

and solve for k