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UNIT 5: LINEAR EQUATIONS AND INEQUALITIES

SECTION 6.1: SOLVING EQUATIONS BY USING INVERSE OPERATIONS

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MATH 9

WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Patterns and Relations 3" OR "PR3" which states:

"Model and solve problems using linear equations in a variety of forms ($ax = b$; $ax + b = c$; $ax + b = cx + d$; $a(bx + c) = d(ex + f)$ etc.) concretely, pictorially and symbolically where a, b, c, d, e and f are rational numbers."

What does THAT mean???

SCO PR3 means ALGEBRA!!!

WARM UP:

SOLVE AND VERIFY THE FOLLOWING EQUATION:

$$5(x - 10) = -80$$

$$5x - 50 = -80$$

$$5x - 50 + 50 = -80 + 50$$

$$\frac{5x}{5} = \frac{-30}{5}$$

$$x = -6$$

WARM UP:

SOLVE AND VERIFY THE FOLLOWING EQUATION:

$$\frac{5(x - 10)}{5} = \frac{-80}{5}$$

$$x - 10 = -16$$

$$x - 10 + 10 = -16 + 10$$

$$x = -6$$

LS	RS
$5(x-10)$	-80
$5(-6-10)$	
$5(-16)$	
-80	

$LS = RS \therefore x = -6.$

HOMEWORK QUESTIONS???
(page 273, #9 to #11 and #14 to #18)

10 def

10. a) $5 = \frac{g}{-2} - 5$

$5 + 5 = \frac{g}{-2} - 5 + 5$

$10 = \frac{g}{-2}$

$-2(10) = -2\left(\frac{g}{-2}\right)$

$-20 = g$

HOMEWORK QUESTIONS???
(page 273, #9 to #11 and #14 to #18)

10. e) $\frac{2c}{5} = 1.2$

$5\left(\frac{2c}{5}\right) = 5(1.2)$

$\frac{2c}{2} = \frac{6}{2}$

$c = 3$

$\frac{2c}{5} = 1.2$

$\frac{5}{2}\left(\frac{2c}{5}\right) = \frac{5}{2}\left(\frac{1.2}{1}\right)$

$c = \frac{6}{2}$

$c = 3$

10.f) $1.2 = \frac{2a}{3} + 5.1$

$1.2 - 5.1 = \frac{2a}{3} + 5.1 - 5.1$

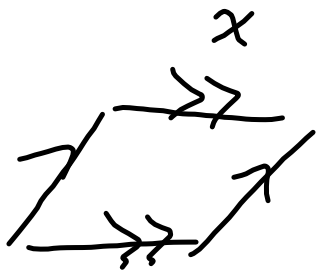
$-3.9 = \frac{2a}{3}$

$\frac{3}{2}\left(\frac{-3.9}{1}\right) = \frac{3}{2}\left(\frac{2a}{3}\right)$

$\frac{-11.7}{2} = a$

$-5.85 = a$

14.



$2x + 2.4 = 6.6$

$2x + 2.4 - 2.4 = 6.6 - 2.4$

$\frac{2x}{2} = \frac{4.2}{2}$

$x = 2.1$ cm

$\frac{2(x+1.2)}{2} = \frac{6.6}{2}$

$x + 1.2 = 3.3$

$x + 1.2 - 1.2 = 3.3 - 1.2$

$x = 2.1$ cm

EX. 8: Dealing with fractions in equations:

a) $5 - \frac{1}{2}x = 3$

$5 - \frac{1}{2}x - 5 = 3 - 5$

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

$\frac{2}{1}\left(-\frac{1}{2}x\right) = 2(-2)$

$-x = -4$

$\frac{-x}{-1} = \frac{-4}{-1}$

$x = 4$

$-x = -4$

$x = 4$

Verification:

LS	RS
$5 - \frac{1}{2}x$	3
$5 - \frac{1}{2}\left(\frac{4}{1}\right)$	
$5 - 2$	
3	

$LS = RS \therefore x = 4.$

EX. 8: Dealing with fractions in equations:

a) $5 - \frac{1}{2}x = 3$

$2(5) - 2\left(\frac{1}{2}x\right) = 2(3)$

$10 - x = 6$

$10 - x - 10 = 6 - 10$

$-x = -4$

$x = 4$

Verification:

LS	RS

EX. 8: Dealing with fractions in equations:

b) $3x + \frac{53}{4} = -10$

$4(3x) + 4\left(\frac{53}{4}\right) = 4(-10)$

$12x + 53 = -40$

$12x + 53 - 53 = -40 - 53$

$\frac{12x}{12} = \frac{-93}{12}$ $\div 3$ $\div 3$

$x = \frac{-31}{4}$

Verification:

LS	RS
$3x + \frac{53}{4}$	-10
$\frac{3}{1}\left(\frac{-31}{4}\right) + \frac{53}{4}$	
$\frac{-93}{4} + \frac{53}{4}$	
$\frac{-40}{4}$	
-10	

$LS = RS \therefore x = \frac{-31}{4}$.

EX. 8: Dealing with fractions in equations:

c) $\frac{13}{8} + 9h = \frac{43}{5}$ LCM = 40

$\frac{40}{1}\left(\frac{13}{8}\right) + 40(9h) = \frac{40}{1}\left(\frac{43}{5}\right)$

$65 + 360h = 344$

$65 + 360h - 65 = 344 - 65$

$\frac{360h}{360} = \frac{279}{360}$ ÷9 ÷9

$h = \frac{31}{40}$

Verification:

LS	RS
$\frac{13}{8} + 9h$	$\frac{43}{5}$
$\frac{13}{8} + \frac{9}{1}\left(\frac{31}{40}\right)$	
$\frac{13}{8} + \frac{279}{40}$	
$\frac{65}{40} + \frac{279}{40}$	
$\frac{344}{40}$ ÷8 ÷8	
$\frac{43}{5}$	

LS = RS ∴ $h = \frac{31}{40}$.

CONCEPT REINFORCEMENT:

MMS9:

Page 274: **#20 to #22 and #24**

Page 286: **#4 and #5**

Please don't forget to check your answers in the back of the book - this is part of your homework (these answers start on page 513).

HEADS UP - QUIZ SOON!!! There will be a short quiz on Section 6.1 once we have completed it, probably around Feb. 15. This will involve one-step and two-step equations, the distributive property, equations with one denominator and two denominators and verifications.