Warmup: Take out HW #1 for me to check off!

$-3x + 5 = -21$

$-5 \quad -5$

$\frac{-3x}{-3} = \frac{-26}{-3}$

$x = \frac{26}{3}$ or $8.\overline{6}$

8.7

8.67

$8x - 7 = -3x + 2$

$-3x \quad +3x$

$11x - 7 = 2$

$+7 \quad +7$

$\frac{11x}{11} = \frac{9}{11}$

$x = 9/11$ or .82 .8 $.\overline{81}$

$-3(4x - 2) - 5 = 8x - 2(6x + 3)$

$-12x + 6 - 5 = 8x - 12x - 6$

$-12x + 1 = -4x - 6$

$+12x \quad +12x$

$1 = 8x - 6$

$+6 \quad +6$

$\frac{7}{8} = \frac{8x}{8}$

$x = 7/8$ or .875

What Were the Headlines After a 3 Foot 10 Inch Fortuneteller Escaped From Jail?

Solve each equation and find your solution below. Cross out the box containing that solution. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

1. $3(2x + 5) = 39$ $x=4$
2. $2(6k - 1) = -38$ $k=-3$
3. $8(7 - y) = -24$ $y=10$
4. $-4(8 + 5n) = 8$ $n=-2$
5. $6(3x - 5) - 7x = 25$ $x=5$
6. $-2(5 + 6m) + 16 = -90$ $m=8$
7. $15(t + 2) + 9t = 6$ $t=-1$
8. $7w - 3(4w + 8) = 11$ $w=-7$
9. $22 - 5(6v - 1) = -63$ $v=3$
10. $18x - (8x - 7) = 67$ $x=6$
11. $8(-2x - 4) + 12 = -52$ $x=2$
12. $2(9n - 1) + 7(n + 6) = -60$ $n=-4$
13. $-3(3x + 15) - (10 + x) = 35$ $x=-9$
14. $11(4 - 6y) + 5(13y + 1) = 9$ $y=40$

MID 5	THE −9	GET −1	SMA 12	SHA 2	RTF 40	AWA −3	LLM 35	AKE −7	EDI 15
TOR −2	UMA −14	PRI 6	UNJ 4	TLA −20	SON 3	AIL 10	CHA −4	RGE −12	TLE 8

S M A L L m E D I U M A T L A R G E

Solve for x:

$$ax + 3 = 7$$
$$-3 \quad -3$$

$$\frac{a \cdot x}{a} = \frac{4}{a}$$

$$x = \frac{4}{a}$$

side ex

$$2x + 3 = 7$$
$$-3 \quad -3$$

$$\frac{2x}{2} = \frac{4}{2}$$

$$x = 2$$

Area of rectangle

$$A = l \cdot w$$

$$\frac{A}{w} = \frac{l \cdot w}{w}$$

$$l = \frac{A}{w}$$

solve for length

Solve for y:

$$ay + b = 4$$

$-b \quad -b$

$$\frac{a \cdot y}{a} = \frac{4 - b}{a}$$

$$y = \frac{4-b}{a}$$

$$y = \frac{4}{a} - \frac{b}{a}$$

NOT

$$4 - \frac{b}{a}$$

$$\frac{a}{a}y + \frac{b}{a} = \frac{4}{a}$$

$$y + \frac{b}{a} = \frac{4}{a} - \frac{b}{a}$$

$$-\frac{b}{a}$$

Solve for x:

$$4x - 8 = t$$

$+8 \quad +8$

$$\frac{4x}{4} = \frac{t+8}{4}$$

$$x = \frac{t+8}{4}$$

$$= \frac{t}{4} + \frac{8}{4}$$

$$\frac{t}{4} + 2$$

Not

$t + 2$

You try: Solve for x:

1) $ax+2=b-5$

$-2 \quad -2$

$\frac{ax}{a} = \frac{b-7}{a}$

$x = \frac{b-7}{a}$

2) $c(x+4)=8$

$cx+4c=8$

$\frac{cx}{c} = \frac{8-4c}{c}$

$x = \frac{8-4c}{c}$

$\frac{c(x+4)}{c} = \frac{8}{c}$

$x+4 = \frac{8}{c}$

$-4 \quad -4$

$x = \frac{8}{c} - 4$

3) $ax+3b=2b-6$

$-3b \quad -3b$

$\frac{ax}{a} = \frac{-b-6}{a}$

$x = \frac{-b-6}{a}$

E.Q.: How do I solve an equation in one variable?

Writing and solving an equation in 1 Variable

(a) Three times a number is equal to the number decreased by two. What is the number?

(1) Let x = the number

(2) $3x = 1x - 2$

$-1x \quad -1x$

$2x = -2$

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

$x = -1$

$3(-1) = -1 - 2$

$-3 = -3$ ✓

Steps to use when solving a word problem

STEP 1: **Read it through**
Read the problem carefully and note down what is given and what is required.

STEP 2: **Define your variables**
Select a letter or letters say x (and y) to represent the unknown quantity(ies) asked for.

STEP 3: **Write your expression**
Represent the word statements of the problem in the symbolic language step by step.

STEP 4: **Turn it into an equation**
Look for quantities which are equal as per conditions given and form an equation or equations.

STEP 5: **Solve it**
Solve the equation(s) obtained in step 4.

STEP 6: **Does it make sense?**
Check the result for making sure that your answer satisfies the requirements of the problem.

(b) The sum of two consecutive numbers is 93. What are the numbers?

46, 47

Let x = first number = 46

Let $x+1$ = second number = 47

$$\underbrace{x}_{\text{1st \#}} + \underbrace{x+1}_{\text{2nd \#}} = 93$$

$$2x + 1 = 93$$
$$-1 \quad -1$$
$$2x = 92$$
$$\frac{2x}{2} = \frac{92}{2}$$

$x = 46$

(c) The sum of two consecutive *even* numbers is 46. Find the numbers.

Let x = first even # = 22

$x+2$ = next even # = 24

$$(x) + (x+2) = 46$$

$$2x + 2 = 46$$

$$-2 \quad -2$$

$$\frac{2x}{2} = \frac{44}{2}$$

(f) Two times a number is equal to six less than three times the number. What is the number?

n 3n

= subtract

Let n = the number

6 − 3n

$2n = 3n - 6$

$-3n \quad -3n$

$\frac{-n}{-1} = \frac{-6}{-1}$

$n = 6$

Lucy's Task

Lucy has been assigned the following linear equations and inequality word problems. Help her solve each problem below by using a five step plan.

- Drawing a Sketch (if necessary)
- Defining a Variable
- Setting up an equation or inequality
- Solve the equation or inequality
- Make sure you answer the question

- Work with a partner to solve the given equations.
- Use the word problem process I gave you in class today.
- Show all steps towards both writing and solving the equations.

HW #2 Word Problem Practice