Solving 2-Step Equations:

The "usual" process:

Summary	Solving Two-Step Equations
Step 1	Use the Addition or Subtraction Property of Equality to get the term with a variable alone on one side of the equation.
Step 2	Use the Multiplication or Division Property of Equality to write an equivalent equation in which the variable has a coefficient of 1.

1. Louis had 12 goals when he was traded to a new team. He averaged 1.25 goals each game for his new team. Write and solve an equation to find out how many games Louis played with his new team if he ended up having a total of 42 goals for the season.

EQ: $42 = 12 + 1.25g$

$-12 \quad -12$

Variables: g = games

$30 = 1.25g$

$g = 24$ games

2. $5 - 4(3g + 5) = 17$

$5 - 12g - 20 = 17$

$-15 - 12g = 17$

$+15 \quad +15$

$-12g = 32$

$g = -2.6$

3. $5 - \frac{9}{7}w = -3$

$-5 \quad -5$

$7 \cdot -\frac{9}{7}w = -8 \cdot 7$

$-9w = -56$

$w = \frac{56}{9}, 6.\overline{2}$

Answers to Hwk #9

Sect. 2-1 Part 1

6. $x = 5\frac{2}{3}$ or $\frac{17}{3}$

13. $a = -57$

14. $k = \frac{5}{11}$

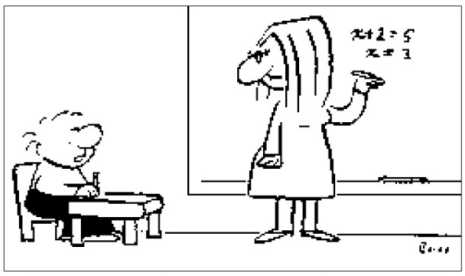
21. $y = 500$

29. $x = -9$

38. $y = -4.25$ or $-4\frac{1}{4}$ or $-\frac{17}{4}$

49. $x = -\frac{4}{7}$

74. 75. 76.



"Just a minute! Yesterday you said X equals two!"

74. **Critical Thinking** Explain what the student does *not* understand about using letters in algebra.

75. What property of equality did the teacher use to solve the equation?

6. $x - \frac{2}{3} = 5$

13. $-31 = 26 + a$

14. $k + \frac{3}{11} = \frac{8}{11}$

21. $\frac{y}{5} = 100$

29. $-\frac{2}{3}x = 6$

38. $-\frac{12}{17}y = 3$

49. $-4 = 7x$

Sect. 2-2 Part 2

14. $x = 120$ 15. $m = 45$

17. $EQ : 2n + 4028 = 51{,}514$

$n =$ # books library had before donation

$n = 23{,}743$ books

18. $EQ : 2m + 18 = 60$

$m =$ # minutes

$m = 21$ min

19. $EQ : 39.95 + 0.35m = 69.70$

$m =$ # minutes

$m = 85$ min

20. $b = 21$ 40. $x = 4$ 45. $x = 0$

46. $c = 8.75$ 61. $a = 2$

19. Cell Phones One cell phone plan costs \$39.95 per month. The first 500 minutes of usage are free. Each minute thereafter costs \$.35. For a bill of \$69.70, how many minutes over 500 minutes was the cell phone in use?

14. $41 = x -$

15. $-3 + \frac{m}{3} =$

17. Donations A
double the n

18. Cooking Su
carrots per
finish if you

40. $\frac{5}{7}x + \frac{1}{7} =$

45. $7 = -2x$

46. $\frac{1}{2} = \frac{2}{5}c$

61. $\frac{a - 10}{-4} =$

You earn $7.50 per hour at a restaurant. Last week your paycheck was for $262.50 before taxes were taken out. Write and solve an equation to find out the number of hours you worked.

$\frac{262.50}{7.50} = \frac{7.50h}{7.50}$

h = hours

$h = 35$ hours

A plumber charges $75 to come to your house and $35 an hour for repairs. If the plumber charged you $355 write and solve an equation to find the number of hours the they must have worked on your repairs.

$355 = 75 + 35h$

$-75 \quad -75$

$35h = 280$

$h = 8$ hrs

h = hours

1. When the baker turned off the oven the temperature was $400\,^\circ F$. The oven cooled off $14\,^\circ F$ per min. After a while the temperature in the oven was $85\,^\circ F$. Write and solve an equation to find the number of minutes it took the oven to cool from $400\,^\circ F$ down to $85\,^\circ F$.

$m = \text{min}$

$400 - 14m = 85$

$-400 \quad -400$

$-14m = -315$

$m = 22.5 \text{ min}$

2. Beneath Earth's surface, the temperature increases $10\,^\circ C$ every kilometer. Suppose that the surface temperature is $22\,^\circ C$, and at the bottom of a gold mine it is $45\,^\circ C$. Write and solve an equation to find the depth of the gold mine.

$45 = 22 + 10K \quad K = \text{Km}$

$23 = 10K$

$K = 2.3 \text{ Km}$

3. One health insurance policy pays people for claims by multiplying the claim amount by 0.8 and then subtracting $500. If a person receives a check for $4650, how much was the claim amount?

$4650 = 0.8c - 500$

$5150 = 0.8c$

$c = \$6437.50$

c = claim amt

4. A state park charges admission of $6 per person plus $3 for parking. Jo paid $27 when her car entered the park. Write and solve an equation to find the number of people in Jo's car. Define your variable.

$6p + 3 = 27$

$p = 4$ people

p = people

1.) Solve.

$\frac{5}{4} = \frac{B}{11}$ $4B = 55$

$B = \frac{55}{4}, 13.75$

Solve each.

2.) $1 + \frac{4}{3}a = 25$

$-1 \quad -1$

$\frac{4}{3}a = 24$

$4a = 72$

$a = 18$

3.) $21\left(\frac{m}{3} + \frac{5}{7} = 11\right)21$

$7m + 15 = 231$

$7m = 216$

$m = 72$

4.) Solving problems involving many fractions.

$$\frac{3}{11}x + \frac{5}{11} = \frac{18}{11} - \frac{5}{11}$$

$$-\frac{5}{11} \quad -\frac{5}{11}$$

$$\frac{11}{3} \cdot \frac{3}{11}X = \frac{13}{11} \cdot \frac{11}{3}$$

$$X = \frac{13}{3}; 4.\overline{3}$$

5.) $\left(\frac{5}{21} + \frac{6}{7}x = 12\right)21$

$$5 + 18X = 252$$

$$18X = 247$$

$$X = 13.72$$

6.) $24\left(\frac{7}{12} - \frac{3}{8}x = \frac{5}{6}\right)24$

$14 - 9x = 20$

$-9x = 6$

$x = \frac{6}{-9}, -\frac{2}{3}, -0.\overline{6}$

HW #10 - due tomorrow

Pages: 84-85

Problems: 9, 10, 29-32, 64, 68

IXL #4 - J.3 & J.4 due tomorrow at 4pm!