Wednesday, November 7, 2012

Agenda:
- **TISK & MM**
- **Lesson 10-1: Solve 2-step equations.**
- **Homework: p. 500 #16-32 even**

TISK Problems

1) Solve the equation: $\frac{x}{7} = -4$

2) Convert to a percent: $\frac{4}{9}$

3) Simplify: $5h + 7 - 8(6h + 1) - 9h$

There will be 2 Mental Math questions today.

Ch. 9 Practice Test Answers

1) $\frac{2}{25}$

2) $\frac{3}{25}$

3) 0

4) 1

5) $\frac{8}{25}$

6) $\frac{1}{5}$

7) $\frac{7}{25}$

8) $\frac{29}{250}$

9) $\frac{21}{500}$

10) $\frac{121}{250}$

11) $\frac{89}{250}$

12) $\frac{159}{500}$

13) 16

14) $\frac{1}{16}$

15) $\frac{1}{8}$

16) 5,040

17) 6

18) 14

19) 60

20) 5,040

21) 56

22) 43,758

23) Combination; $_6C_2$

24) Combination; $_{500}C_5$

25) Permutation; $_{300}P_4$

26) Combination; $_{40}C_3$

27) Dependent; $\frac{49}{4990}$

28) independent; $\frac{9}{338}$

Ch. 9 Practice Test Answers

29) dependent; $\frac{200}{801}$

30) 4:5

31) 2:3

32) 11:2

33) $\frac{3}{4}$

34) 8:7

§10-1 Solving 2-step equations.

- Remember the order of operations!
  - When you solve an equation, you undo things in the opposite order that it was done.
  - FIRST, add or subtract.
  - THEN, multiply or divide.

Example 1. Solve the equation.

$$2x + 7 = 31$$
$$\underline{-7 \qquad -7}$$
$$\underline{\frac{2x}{2} = \frac{24}{2}}$$
$$x = 12$$

$$4x - 7 = {}^{-}15$$
$$\underline{+7 \qquad +7}$$
$$\underline{\frac{4x}{4} = \frac{{}^{-}8}{4}}$$
$$x = {}^{-}2$$

Check Point. You try it.

$$^-3x + 14 = 5 \qquad\qquad 6x - 11 = 7$$

Example 2. Solve the equation.

$$\frac{x}{3} + 4 = 2$$
$$\phantom{\frac{x}{3}}\ -4\quad -4$$

$$3 \cdot \frac{x}{3} = {}^-2 \cdot 3$$

$$x = {}^-6$$

$$\frac{x}{9} - 4 = 3$$
$$\phantom{\frac{x}{9}}\ +4\quad +4$$

$$9 \cdot \frac{x}{9} = 7 \cdot 9$$
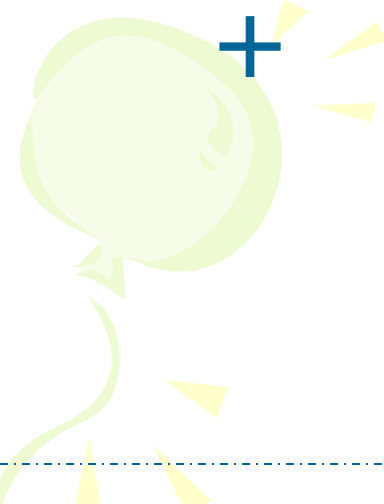
$$x = 63$$

Check Point. You try it.

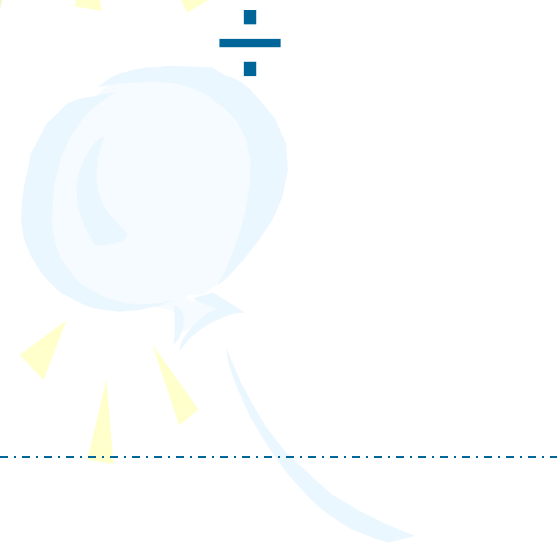$$\frac{x}{^-9} + 21 = 36 \qquad\qquad \frac{x}{5} - 13 = {}^-8$$

Translating Expressions into Equations

- Lily has four more candy bars than Brendan. Brendan has twice the number of candy bars as Audrey has. If they have a total of fourteen candy bars, how many does each person have?

- To solve a question like this, it's necessary to know what certain key phrases mean.

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Example 1. Translate into an equation and solve.

- Lily has four more candy bars than Brendan. Brendan has twice the number of candy bars as Audrey has. If they have a total of fourteen candy bars, how many does each person have?

Let L = # of candy bars Lily has.

Let b = # of candy bars Brendan has.

Let a = # of candy bars Audrey has.

Then,

$$L = 4 + b = 4 + 2a$$

$$b = 2a$$

And… $(4 + 2a) + 2a + a = 14$

Now, to solve it…

$$(4 + 2a) + 2a + a = 14$$

$$4 + 2a + 2a + a = 14$$ Collect like terms.

$$4 + 5a = 14$$ Add/Subtract.
$$-4 \qquad -4$$

$$\frac{5a}{5} = \frac{10}{5}$$ Multiply/Divide.

$$a = 2$$

So, Audrey had 2 candy bars.
Lily had 4 + 2(2) = 4 + 4 = 8 candy bars.
Brendan had 2(2) = 4 candy bars.

$$L = 4 + 2a$$

$$b = 2a$$

Example 2. Write an equation then solve it.

- Drew played video games for six fewer hours than Alex. If the two of them played for a total of 26 hours, how many hours did each boy play video games?

Let d = # of hours Drew played.

Let a = # of hours Alex played.

$d = a - 6$

$d + a = 26$

$a - 6 + a = 26$ Collect like terms.

$2a - 6 = 26$ Add/Subtract.

$ +6 \quad +6$

So, Alex played for 16 hours and Drew played for 16 – 6 = 10 hours.

$\dfrac{2a}{2} = \dfrac{32}{2}$ Multiply/Divide.

$a = 16$

Example 3. Write an equation then solve it.

- Two-thirds of a number increased by seven is thirteen. What is the number?

$$\frac{2}{3} \cdot n + 7 = 13$$

$$-7 \quad -7$$

$$\frac{3}{2} \cdot \frac{2}{3} n = \frac{6}{1} \cdot \frac{3}{2}$$

$$n = 9$$

Example 4. Write an equation & solve.

- Four times the sum of a number and three times the number is 64. What is the number?

$$4 \cdot \left(n + 3n \right) = 64$$

$$4 \left(4n \right) = 64$$

$$\frac{16n}{16} = \frac{64}{16}$$

$$n = 4$$

Example 5. Write an equation and solve.

- Five less than triple a number is sixteen. What is the number?

$$3n - 5 = 16$$
$$ +5 \quad +5$$
$$\frac{3n}{3} = \frac{21}{3}$$
$$n = 7$$