Linear Equations with One Variable

Algebra 1

Name_____

I. Solve each of the equations to find the value of x that makes the equation true. If the equation has no solutions, OR if the equation is true for any value of x, **say so in words.** You must either show work OR check your answer.

1. $x + 5 = -12$

2. $8x = 64$

3. $\frac{x}{4} = -10$

4. $2x - 7 = -6$

5. $4x + 10 = 15 + 4x$

6. $\frac{1}{5}x + 20 = 6$

7. $-10(x - 1) = 10 + 3x$

8. $2 + 10x = 2(5x + 1)$

9. $3x + 4 = -12 + x$

10. $3(x + 1) = 8 - x + 1$

II. Use a calculator to solve the equations for x. Round your answers to the nearest tenth.

1. $8.3 = 17.5x - 100.2$

2. $3x - 13.4 = 2(8 - 5.2x)$

III. Answer each word problem by setting up an equation with one variable and solving. Write your answer in a **complete sentence** and include **unit words.** Don't forget to **declare your variable!**

1. The scale in the picture is perfectly balanced. How much does each box weigh if each circle weighs one kilogram?
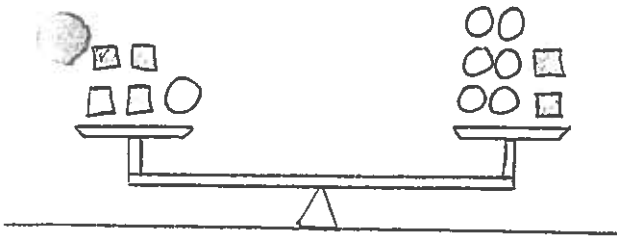
2. Chenelle took a taxi cab ride. The cab company charges a flat $2.20 plus an additional $1.50 for each mile driven. How far was Chenelle's cab ride if the bill was $18.70?

III. Answer each word problem by setting up an equation with one variable and solving. Write your answer in a **complete sentence** and include **unit words.**

3. Horatio, the farmer from last night's homework, is building another sheep pen. This pen is going to be built next to the barn so that he will not require any fence on one side of the cage. If Horatio wants the cage to be twice as long on the side that runs parallel to the barn wall and has a total of 80 feet of fence material, what will be the dimensions of the new sheep pen?

fence

Barn | sheep pen | fence

fence
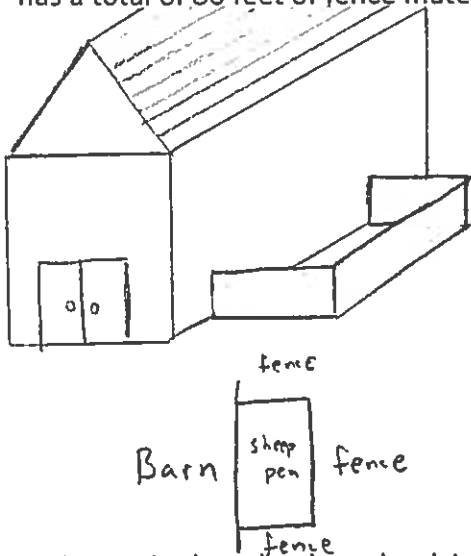
4. A page in the school yearbook is printed on regular 11 inch by 8.5 inch paper. The left and right margins are both 1 inch. Mrs. ▮▮▮▮ wants to fit 4 pictures across the page. If the spaces between pictures are 0.5 inches, how wide can the pictures be? Draw a picture to help you set up your equation.