



DeSoto
COUNTY SCHOOLS

**Foundations
to
Algebra**

Week 8

Name: _____

Date: _____

More Practice Solving Linear Equations Algebra 1 Classwork and Homework

At this point we have seen all of the fundamental techniques that we need to solve linear equations. This problem set serves to reinforce all of these skills and concepts.

Skills

1. Which of the following is the solution to the equation $4(x-1) = 3(2x-6) + 4$?

(1) 9

(3) 5

(2) -4

(4) -17

2. Which of the following solves the equation $8 - (2x - 6) = 22$? _____

(1) -10

(3) 0

(2) -4

(4) 7

3. Which expression is equivalent to $5(3x + 7) - (4x - 6)$? _____

(1) $11x + 41$

(3) $19x - 29$

(2) $11x + 29$

(4) $19x + 29$ _____

4. Solve each of the following linear equations. Check your answers using **STORE**.

(a) $3(2x+1) - 7 = 50$

(b) $3(x-5) = -2(4-5x)$

(c) $5(x+1) = 2(4x+7)$

(d) $2(2x+5) = 8x - 4$

(e) $5(x+6) = 8x + 75$

(f) $2x - (4x - 12) = 3$

5. Solve each of the following linear equations. Check your answers using **STORE**.

(a) $4(x+1)-3(2x+6)=-11$

(b) $4(2x+1)-(3x-10)=-21$

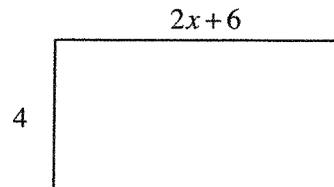
(c) $3x-5(2x-6)=9(2-x)$

(d) $4(2x+1)-3(2x-5)=29$

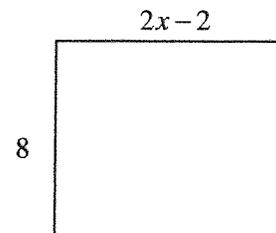
Applications

6. The two rectangles shown below (*not drawn to scale*) have side lengths given in terms of x and have equal areas.

(a) Determine the value of x .



(b) Determine the common area of the rectangles.



(c) What type of special rectangle is the second one? Explain.

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Linear Word Problems Algebra 1

This lesson will demonstrate the use of previously learned algebraic techniques in solving real world linear scenarios. The key to doing all of these problems is to **read the problem as many times as necessary to understand what is being asked.**

Exercise #1: At a concert, Nabila purchased three t-shirts and a concert program that cost \$15. In total, Nabila spent \$90. Find the cost of a single t-shirt if they all had the same price.

STEPS IN SOLVING WORD PROBLEMS WITH LINEAR ALGEBRA

1. Define the variable that you want to find with a let statement.
2. Create an equation that expresses the information given in the problem's scenario.
3. Solve your equation using algebraic methods.
4. Consider if your answer is reasonable.
5. Label your solution appropriately.
6. Check your answer with the conditions given in the problem.

Exercise #2: Oberon Cell Phone Company advertises service for 3 cents per minute plus a monthly fee of \$29.95. If Parker's phone bill for October was \$38.95, find the number of minutes he used.

Exercise #3: Quin was shopping at a used book sale where all books were selling at the same price. He bought six science fiction books and eight mysteries. He also decided to buy a poster for \$2.40. In total, Quin spent \$8.70. What was the price of a single book?

Exercise #4: Rachael and Sabine belong to different local gyms. Rachael pays \$35 per month and a one-time registration fee of \$15. Sabine pays only \$25 per month but had to pay a \$75 registration fee. After how many months will Rachael and Sabine have spent the same amount on their gym memberships?

Exercise #5: While on vacation, Talisha won a lot of tickets at two arcades on the boardwalk she was visiting. The first arcade charges \$1 to cash in the tickets and gives you 12 cents back on each ticket won, while the second arcade gives you 10 cents back on each ticket and no fee to cash in. In order for Talisha to make an equal profit from each arcade, how many tickets must she have won?

Exercise #6: Ulani has an older sister and a younger sister. Her older sister is one year more than twice Ulani's age. Ulani's younger sister is three years younger than she is. The sum of their three ages is 26. Find Ulani's age.

Exercise #7: A sale at a local grocery store was offering all fruit at the same price per pound. Valencia bought 1.5 pounds of peaches and 3.5 pounds of plums. She used a 50 cents off coupon and ended up spending exactly \$5.00. What was the price per pound for the fruit that Valencia bought?

5. Abbey and Blanca are playing games at the arcade in the mall. Abbey has \$20 and is playing a game that costs 50 cents per game. Blanca arrived at the arcade with \$22 and is playing a game that costs 75 cents per game.

(a) Create two linear equations below that give the amount that each girl has left as a function of the number of games they have played.

Let the number of games played = x .

$A =$

$B =$

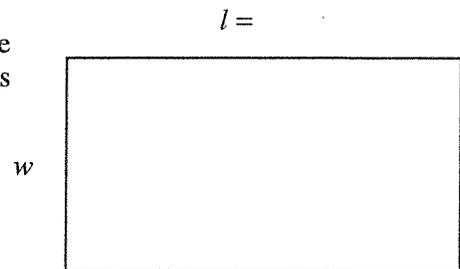
(b) After how many games will the two girls have the same amount of money left?

(c) How much money do they have at this point?

6. The length of a rectangular garden is three feet more than twice its width.

(a) If the width of this garden is given by w then write an expression, in terms of w , for the length, l , of the garden.

(b) Write an expression, in terms of w , for the perimeter of the garden. Remember, the perimeter is the sum of the two widths and the two lengths.



(c) If the perimeter of the garden is 114 feet, then what is the width of the garden?