Math 7 Chapter's 7+8 Study Guide

Solve each of the following equations. Show each step clearly (railroad tracks!). Check your solutions.

1. $\frac{2}{5}x = -30$

2. $\frac{x}{4} + 6 = -5$
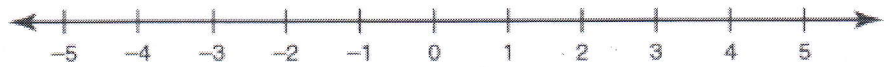
3. $5x + 7x + 14 = 38$
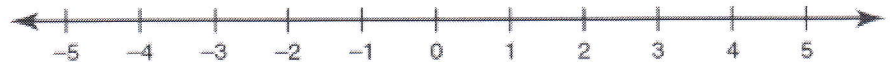
4. $2(6x - 12) = 48$

5. $-3(x + 4) - 2 = -11$

6. $(3x - 4) = 4x - 2$

Solve the following inequalities. Show every step neatly and clearly. Graph the solution set on a number line.

7. $3x + 7 \geq -5$

8. $-4x - 2 > 10$

9. There are 76 students in the Breezewood Middle School chorus. The number of girls in the chorus is 13 more than twice the number of boys.

a. Draw a picture that models the situation. Label the unknown parts with variables and the known parts with their values.

    Boys:

    Girls:

b. Write an expression for the number of boys and an expression for the number of girls using the variable b to represent the number of boys.

    Boys:

    Girls:

c. Write an equation to represent this situation.

d. Determine the number of boys and the number of girls that belong to the chorus.

10. Jenny has $25 and she earns $10 for each lawn that she mows. Jenny wants to buy a concert ticket that costs $65

a. Define a variable for this situation.

b. Write an equation to model the situation.

c. Use your equation to determine the minimum number of Lawns Jenny needs to mow in order to buy the concert ticket.

11. David goes into a candy store with $5.00. He buys 9 peppermints for $0.15 each, and some sour candies. Each sour candy costs $0.25.

a. Define a variable for this situation.

b. Write an equation to model the situation.

c. Use your equation to determine the maximum number of sour candies David can buy.

12. In a freefall skydive, a skydiver begins at an altitude of 13,000 feet. During the one-minute freefall, the skydiver drops towards Earth at a rate of 176 feet per second.

a. Identity the two quantities that are changing, identify the independent and dependent quantities, define variables for those quantities, and write an equation to represent a skydiver's falling distance.

Independent variable:

Dependent variable:

Equation:

b. In this problem, what is the unit rate of change?

c. Draw the graph to represent the problem situation.

Graph with y-axis labeled "Falling Distance (in feet)" ranging from 2000 to 16000, and x-axis labeled "Time (in seconds)" ranging from 0 to 80.