Solving Linear Equations and Inequalities

1. Solve: $5x + 12 = x - 4$

   A. -4
   B. $-8/3$
   C. 2
   D. $4/3$

2. Solve $2(2 - x) \leq -3x - 2$ for x.

   A. $x \leq -6$
   B. $x \leq -3$
   C. $x \leq 2$
   D. $x \geq 6$

3. Solve $5x - 10y = -40$ for y.

   A. $y = -2x - 4$
   B. $y = -\dfrac{1}{2}x + 4$
   C. $y = \dfrac{1}{2}x + 4$
   D. $y = 2x + 4$

4. Solve: $\dfrac{2x + 3}{4} = \dfrac{x}{4}$

   A. $x = -3$
   B. $x = -1$
   C. $x = 1$
   D. $x = 3$

5. The formula $A = \frac{1}{2}bh$ represents the area of a triangle where A represents the area, b is the base of the triangle and h is the height of the triangle.

   Solve this formula for b.

   A. $b = 2A - h$

   B. $b = A - \frac{1}{2}h$

   C. $b = \dfrac{A}{2h}$

   D. $b = \dfrac{2A}{h}$

6. Megan bought 7 charms for $31.50. Each charm costs the same amount of money.

   Write an inequality that can be used to find the maximum amount of charms (c) Megan can buy with $75.

   Answer_____

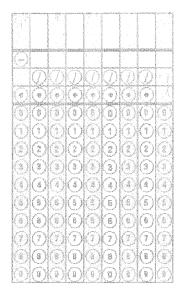   What is the maximum amount of charms Megan can buy with $75?

   Answer_____

7. Solve $-2x - 1 = \dfrac{3x + 5}{2}$ for x.

   Enter your answer in the response grid.

8. Solve: $x + 4.25 = 3.5x - 1.5x - 0.75$

   Enter your answer in the response grid.

9. Solve the inequality below for x.

$$\frac{3}{4}x + 2 \le 3x - 1$$

   A. $x \le \frac{4}{3}$
   B. $x \le \frac{4}{15}$
   C. $x \ge \frac{4}{5}$
   D. $x \ge \frac{4}{3}$

10. The equation below was solved incorrectly. Study the work below.

$$5x + 5 = -3(x - 1)$$

   Step 1: $5x + 5 = -3x + 3$
   Step 2: $\quad\; 2x = -2$
   Step 3: $\quad\;\; x = -1$

   Describe the mistake in the work shown above.

   _____

   _____

   _____

   What is the solution to the equation $5x + 5 = -3(x - 1)$?

   Answer_____

5

11. Tony works at a bike store. Tony earns $300 every week plus $15 for every bike that he sells.

Write an inequality that can be used to determine the number of bikes (*b*) Tony must sell in one week if he wants to earn a minimum of $500 for that week.

Answer_____

What is the minimum number of bikes Tony must sell in one week to earn a weekly salary of $500?

Answer_____

12. Alex sells T-shirts. It costs Alex $6.50 to buy each T-shirt. Alex also pays $150 each month to rent equipment to add print to the T-shirts.

Alex sells each T-shirt for $12.

Write an inequality that can be used to determine the number of T-shirts (*T*) Alex must sell each month in order to make a profit for the month. *(Assume that Alex sells each T-shirt he buys.)*

Answer_____

What is the minimum number of T-shirts Alex must sell in order to make a profit in a given month? *(Assume that Alex sells each T-shirt he buys.)*

Answer_____

13. Solve: $-9 \leq -2x + 3 \leq 1$

    A. $3 \geq x \geq -1$
    B. $6 \leq x \leq 1$
    C. $3 \leq x \leq -1$
    D. $6 \geq x \geq 1$