1. 10 pts. each Solve each equation.

   (a) $-4t + 5t - 8 + 4 = 6t - 4$

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

2. 10 pts. each Solve each inequality, then state the solution set in interval notation.

   (a) $4x + 1 \leq -31$

   (b) $-16 < 3t + 2 \leq -10$

3. 10 pts. Solve for L: $P = 2L + 2W$.

4. 10 pts. Translate into a mathematical expression: *13 decreased by eight times a number.*

5. 10 pts. each Solve each compound inequality, then state the solution set in interval notation.

   (a) $x + 5 \leq 11$ and $x - 3 \geq -1$

   (b) $3x < x + 22$ or $x + 1 > 15$

6. 10 pts. Solve the absolute value equation $|3x - 1| = 8$.

7. 10 pts. Solve the absolute value inequality $|2x + 7| < 9$, then state the solution set in interval notation.

8. 10 pts. each Consider the line given by the equation $x - 4y = 6$.

   (a) Find the x- and y-intercepts of the line.

   (b) Graph the line.

9. 10 pts. Find the midpoint of the segment with the endpoints $\left(-\dfrac{1}{2}, \dfrac{1}{3}\right)$ and $\left(\dfrac{3}{2}, \dfrac{5}{3}\right)$.

10. 10 pts. Find the slope of the line containing the points $(9, -3)$ and $(5, 2)$.

11. 15 pts. The Bermuda Triangle has a perimeter of 3075 miles. The shortest side measures 75 miles less than the middle side, and the longest side measures 375 miles more than the middle side. Find the lengths of the three sides.

12. 15 pts. Sebastian Thumbletwiddle earned $12,000 last year by giving jai-alai lessons. He invested part of the money at 3% simple interest and the rest at 7%. In one year, he earned a total of $490 in interest. How much did he invest at each rate? (Round to the nearest cent.)

13. 15 pts. How many liters of a 18% alcohol solution must be mixed with 20 L of a 50% solution to get a 30% solution?

14. 10 pts. Find an equation of the line passing through the points $(-2, 5)$ and $(-8, 10)$. Write the equation in standard form and also in slope-intercept form.