MAT 1275CO - Chapter 1.2.1 - 1.2.2 Problem Set

1. Write the expression $(3x + 1) + (7 - 9x) + (2x - 4)$ in a simpler form, if possible.

2. Simplify completely.
   (a) $25 - (-1 + x)$
   (b) $3(2x - 6) - (6x - 2)$
   (c) $25 - (-1 + x)$
   (d) $5(-2 - 10a) + 2(5a - 3) - 3a$

3. Answer each of the following questions by T (for true) or F (for false). If you answer true you are saying that the equation is true for all values of a, b, and c.
   (a) $a + (b + c) = (a + b) + c$
   (b) $a - (b - c) = (a - b) - c$
   (c) $a - (b + c) = (a - b) + c$
   (d) $a + (b - c) = (a + b) - c$
   (e) $a \div (b \div c) = (a \div b) \div c$
   (f) $a \div (b \times c) = (a \div b) \times c$
   (g) $a \times (b \div c) = (a \times b) \div c$
   (h) $a \times (b \times c) = (a \times b) \times c$

4. Jenna uses the expression $15 \times n$ to calculate the amount of money she will make for working n hours. How much will she make on her first day of work if she works 4 hours?

5. Simplify completely.
   (a) $(5x^2 + 3x + 9) - (-2x^2 + 5x - 4)$
   (b) $[x^3 - (4x^2 - x + 2)] - [-x^3 - (4x^2 - x - 4)]$
   (c) $(7x^2y - y + 3) + (3x^2y + 5x - 4)$
   (d) $(10a^8b^7 + 5a^4b^3 + 7ab) + (12a^8b^7 - 5a^3b^4 - 6ab)$

6. Give an expression for the perimeter of a equilateral triangle whose sides have length L. Use the formula to find the perimeter of a triangle whose sides are length 7 inches.

7. If we make a box of height x , with no top, by cutting square corners from a 50 in by 50 in piece of cardboard and folding them up what are the dimensions of the base of the box in terms of x? What is the biggest x can be?

8. Ashley is starting a smoothie bar. She earned a $2000 grant. She will earn $7 for every smoothie sold. Find an expression to represent how much business Ashley's money will have earned after s smoothies are sold. How much will her business have earned after 50 cups are sold?

Critical Thinking What is the maximum degree of the sum of two third degree polynomials? What is the minimum degree?