MAT 1275CO - Chapter 1.2.1 - 1.2.2 Problem Set Key

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

2. Simplify completely.
   (a) $25-(-1+x)$ $26-x$
   (b) $3(2x-6)-(6x-2)$ -14
   (c) $-(6-2x)+3(x+4)$ $5x+6$
   (d) $5(-2-10a)+2(5a-3)-3a$ $-40a-16$

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) $a+(b+c)=(a+b)+c$ T
   (b) $a-(b-c)=(a-b)-c$ F
   (c) $a-(b+c)=(a-b)+c$ F
   (d) $a+(b-c)=(a+b)-c$ T
   (e) $a\div(b\div c)=(a\div b)\div c$ F
   (f) $a\div(b\times c)=(a\div b)\times c$ F
   (g) $a\times(b\div c)=(a\times b)\div c$ T
   (h) $a\times(b\times c)=(a\times b)\times c$ T

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? $\$15\times 4=\$60$

5. Simplify completely.
   (a) $(5x^2+3x+9)-(-2x^2+5x-4)$ $7x^2-2x+13$
   (b) $[x^3-(4x^2-x+2)]-[-x^3-(4x^2-x-4)]$ $2x^3-6$
   (c) $(7x^2y-y+3)+(3x^2y+5x-4)$ $10x^2y+5x-y-1$
   (d) $(10a^8b^7+5a^4b^3+7ab)+(12a^8b^7-5a^3b^4-6ab)$ $22a^8b^7+5a^4b^3-5a^3b^4+ab$

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.
   Expression: $3L$ Perimeter: 21 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?
   Expression: $(50-2x)$ in. $\times$ $(50-2x)$ in. The biggest that x can be is 25 inches.

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?
   Expression: $2000+7s$ Earnings: \$ 2350

Critical Thinking What is the maximum degree of the sum of two third degree polynomials? What is the minimum degree? Max: Third degree Min: Zero degree