

Name: _____
Date: _____
Class: _____

Algebra
Unit 7
HW 7-1

1) Put in standard form: $14x^2 - 8x^4 + 10x - 8 + 6x^6 - x^5$

$$6x^6 - x^5 - 8x^4 + 14x^2 + 10x - 8$$

2) Simplify: $(10x^2 - 8x - 7) + (10 - 6x^2 + 8x)$

$$\begin{array}{r} 10x^2 - 8x - 7 + 10 - 6x^2 + 8x \\ \hline 4x^2 + 3 \end{array}$$

3) Simplify: $(x^2 - 7x - 10) - (18x - 19 + 4x^2)$

$$\begin{array}{r} x^2 - 7x - 10 - 18x + 19 - 4x^2 \\ \hline -3x^2 - 25x + 9 \end{array}$$

4) Simplify: $(4x^2 + 6x - 3) - (3x^2 + 2x + 4)$

$$\begin{array}{r} 4x^2 + 6x - 3 - 3x^2 - 2x - 4 \\ \hline x^2 + 4x - 7 \end{array}$$

5) A box has a width that is 2 inches greater than its height and a length that is 6 inches greater than its height. Its volume is given by the polynomial expression $x^3 + 8x^2 + 12x$, where x is the box's height. What is the box's volume, in cubic inches, if its height is 10 inches?

$$\begin{array}{r} 10^3 + 8(10)^2 + 12(10) \\ 1000 + 800 + 120 \\ \hline 1920 \end{array}$$

6) Simplify: $2(4x^3 - 2x^2 - 6) - (6x^3 + 2x^2 - 8x - 10) + 4x^2 - 2(3x^2 - 4x + 7)$

$$\begin{aligned}
 & \overbrace{2(4x^3 - 2x^2 - 6)} - \overbrace{(6x^3 + 2x^2 - 8x - 10)} + 4x^2 - \overbrace{2(3x^2 - 4x + 7)} \\
 & \underline{8x^3} - \underline{4x^2} - \underline{12x} - \underline{6x^3} - \underline{2x^2} + \underline{8x} + \underline{10} + \underline{4x^2} - \underline{6x^2} + \underline{8x} - \underline{14} \\
 & 2x^3 - 8x^2 + 4x - 4
 \end{aligned}$$

7) If the perimeter of a triangle is represented by $2x^2 - 7x + 9$ and a square has a perimeter represented $3x^2 + 8x - 3$. What is the difference between the square and the triangle?

$$\begin{aligned}
 & \overbrace{3x^2 + 8x - 3} - \overbrace{(2x^2 - 7x + 9)} \\
 & \underline{3x^2} + \underline{8x} - \underline{3} - \underline{2x^2} + \underline{7x} - \underline{9} \\
 & \boxed{x^2 + 15x - 12}
 \end{aligned}$$

8) If a rectangle has an area represented by $6x^2 - 8x + 12$. If you take half of this area, subtract $10x - 7$, and then combine it with $10x^2 - 18$, what would the resulting area be?

$$\begin{aligned}
 & \frac{1}{2} \overbrace{(6x^2 - 8x + 12)} - \overbrace{(10x - 7)} + \overbrace{10x^2 - 18} \\
 & \underline{3x^2} - \underline{4x} + \underline{6} - \underline{10x} + \underline{7} + \underline{10x^2} - \underline{18} \\
 & \boxed{13x^2 - 14x + 5}
 \end{aligned}$$