Polynomials 1 – Introduction to Polynomial Functions **Name _____**
Homework #1 **Per _____ Date _____**

State whether the following function is a polynomial function or not. If it is, express it in standard form, then identify the degree, the leading coefficient and the constant term of each polynomial. If it is not, explain why.

1. $f(x) = 5x^2 + 2x + 7x^3 + 4$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

2. $g(x) = -6x + 23x^3 + 5x^6$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

3. $h(x) = x^{-4} + x - 3$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

4. $j(x) = \left(x^2 + 3\right)\left(4 - 5x^3\right)$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

5. $k(x) = 6x + 3x^2 - 4$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

6. $m(x) = x + \sqrt{8}$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

7. $n(x) = -5x^3 + 1 + \frac{x^4}{6} + 2x$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

8. $p(x) = 2x + 11x^4 - 8x^2$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

9. $q(x) = 4x^{1/2} + 2x^5 - x + 3x^3$

Polynomial: yes no **Standard Form:**_____

Degree:_____ **Leading Coefficient (LC):**_____ **Constant:**_____
Why not?

10. Determine whether each expression is equivalent to $\mathbf{8x^3 + 64}$.
Select Yes or No for each expression.

	Yes	**No**
$\mathbf{(2x + 4)^3}$		
$\mathbf{8(x + 2)^3}$		
$\mathbf{8(x^3 + 8)}$		
$\mathbf{8(x^3 + 2^3)}$		
$\mathbf{(8x + 16)(x^2 - 2x + 4)}$		
$\mathbf{8(x + 2)(x^2 - 2x + 4)}$		