8.3.1 Day 1 - Worksheet

Name: _____

1. **For each of the equations below, state whether or not it is a polynomial function. If it is a polynomial function state its orientation, its degree, and list its coefficients (e.g., $a_2 = -3$) in decreasing order ending with a_0. If it is not a polynomial function, then just continue on.**

Function	Polynomial	Orientation	Degree	Coefficients
$f(x) = -4x^3 - 2x + 1$	yes / no	pos. / neg.	_____	_____
$g(x) = (x+6)(x-3)$	yes / no	pos. / neg.	_____	_____
$h(x) = 3301.4^x$	yes / no	pos. / neg.	_____	_____

2. **Algebraically find the roots of each polynomial function below. Show work algebraically.**

$h(x) = 16x^2 - 64$ $\qquad\qquad$ $j(x) = x^3 + 12x^2 + 36x$

3. **Sketch the graph of $p(x) = (x+2)^2(x-2)$. Label all *x- and y-intercepts* on the graph.**

4. Divide the Polynomials by using the "Box Method":

a). $\dfrac{6x^4-5x^3+10x^2-18x+5}{3x-1}$

b). $x-3\overline{)x^3+x^2-14x+3}$