King Fahd University of Petroleum & Minerals
Faculty of Science
Math P-Y, Math 001 Quiz #12

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Name: ST.ID# Sect.#

1) Determine the left & right behavior of the graph of the following functions:
   a) $f(x) = 6 - 2x + 4x^2 - 5x^5$

   b) $f(x) = -\frac{1}{2}(-x^3 - x^4 + 5x - 13)$

2) Verify that the function $f(x) = 3x^4 + 4x^3 - 3$ has a zero between $a = -2$ & $b = -1$.

3) Use the even & odd powers of $(x - c)$ to determine whether the graph of $f(x)$ crosses or intersects but does not cross The $x - axis$ for the following functions:
   a) $f(x) = (x^2 - 4)\ (x + 2)^2$

   b) $f(x) = x^4 - 3x^2 - 4$

4) Find the zeros of each polynomial:
   a) $f(x) = 3x^4 - 4x^3 - 11x^2 + 16x - 4$

b) $f(x) = x^3 - x^2 - 4x + 4$

c) $f(x) = x^5 + x^3 + 2x^2 - 12x + 8$

5) Find the upper & lower bounds of the polynomial $f(x) = x^4 - 4x^3 + 16x - 16$

6) Use the Descartes' Rules of signs to find the number of possible positive & negative real zeros of $f(x) = x^5 - x^4 - 4x^3 - 4x^2 - 5x - 3$