

Name: _____

Polynomial Functions of Higher Degrees

- 1) Explain why the polynomial $p(x) = 3x^3 + 11x^2 + 8x - 4$ has at least 1 root in the interval from $x=0$ to $x=1$

- 2) Use the intermediate Value Theorem to tell if the function have any real zeros in the given interval
 - 1) $f(x) = x^2 - 7x + 3$ $[1, 7]$
 - 2) $f(x) = x^3 - x + 2$ $[2, 5]$
 - 3) $f(x) = 3x^3 + x^2 - 7x - 4$ $[-2, 5]$

- 3) Use Descarte's Rule of signs to determine the possible number of positive and negative zeros of the function
 - 1) $g(x) = 5x^5 + 10x$
 - 2) $h(x) = 3x^4 + 2x^2 + 1$
 - 3) $h(x) = 4x^2 - 8x + 3$
 - 4) $f(x) = 2x^4 - 3x + 2$
 - 5) $g(x) = 2x^3 - 3x^2 - 3$
 - 6) $f(x) = 2x^4 - 3x + 2$
 - 7) $f(x) = 4x^3 - 3x^2 + 2x - 1$
 - 8) $f(x) = -5x^3 + x^2 - x + 5$
 - 9) $f(x) = 3x^3 + 2x^2 + x + 3$