

Using a graphing calculator, graph the following functions. For each function, determine intervals of increase and decrease, local maxima and minima, absolute maxima and minima, and zeros.

1.  $f(x) = 3x^3 - 9x + 1$

interval of increase: \_\_\_\_\_

interval of decrease: \_\_\_\_\_

local maxima: \_\_\_\_\_

local minima: \_\_\_\_\_

absolute maxima: \_\_\_\_\_

absolute minima: \_\_\_\_\_

zeros: \_\_\_\_\_

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

interval of increase: \_\_\_\_\_

interval of decrease: \_\_\_\_\_

local maxima: \_\_\_\_\_

local minima: \_\_\_\_\_

absolute maxima: \_\_\_\_\_

absolute minima: \_\_\_\_\_

zeros: \_\_\_\_\_

3.  $f(x) = x^5 - 6x^3 + 9x$

interval of increase: \_\_\_\_\_

interval of decrease: \_\_\_\_\_

local maxima: \_\_\_\_\_

local minima: \_\_\_\_\_

absolute maxima: \_\_\_\_\_

absolute minima: \_\_\_\_\_

zeros: \_\_\_\_\_