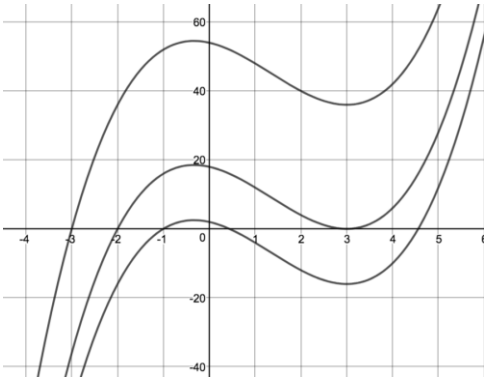
Notes 15-2 Polynomial Functions and their Graphs and Zeros

Let's compare these three polynomial functions:

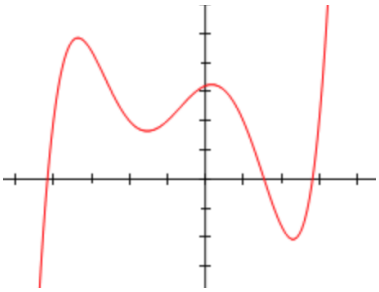
$f(x) = x^3 - 4x^2 - 3x + 2$ $\quad$ $g(x) = x^3 - 4x^2 - 3x + 18$ $\quad$ $h(x) = x^3 - 4x^2 - 3x + 54$



A <u>polynomial function</u> of degree *n* can have up to *n* increasing and decreasing branches resulting in up to *n* zeros and up to *n* – 1 extreme points. (max or min points)

For the polynomial functions below, find:

1.



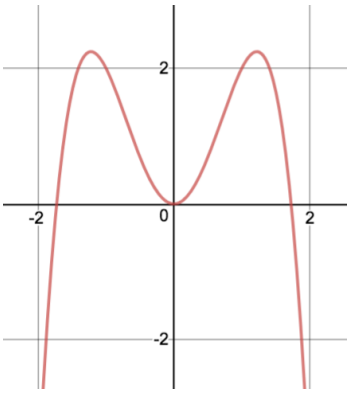
Degree _____

# of real zeros_____

# of complex zeros_____

leading coefficient sign_____

2.



Degree ____

# of real zeros_____

# of complex zeros_____

leading coefficient sign_____

Sketch the graph of the polynomial function described or explain why no function can exist.

3. cubic function with a negative double zero and a positive zero, and a negative leading coefficient

4. quartic function with two distinct positive zeros, two distinct negative zeros, and a negative y-intercept