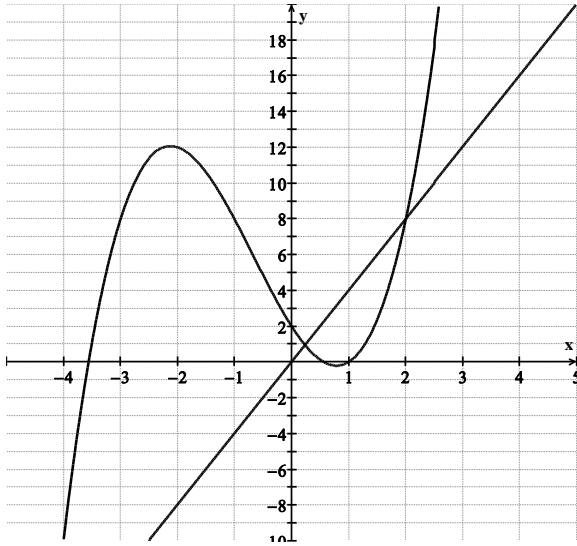


Summary: Graphs and Properties of Polynomial Functions

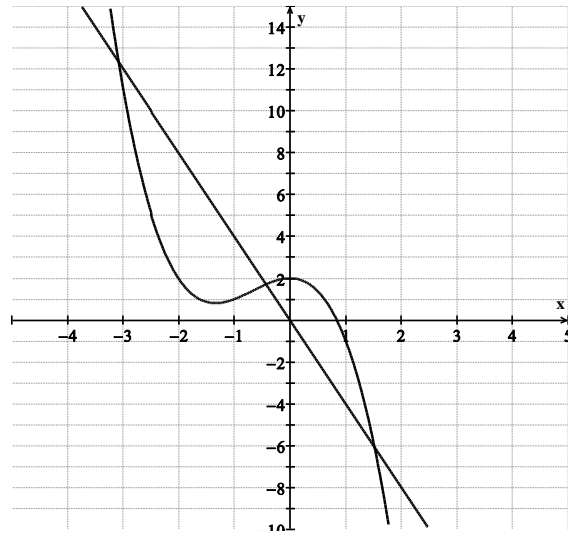
From the investigation there are some trends you should have noticed. You can determine the end behaviour of a function using the degree of the function, combined with the sign of the leading coefficient. The leading coefficient is the coefficient of the term with the largest exponent.

ie. The leading coefficient of $f(x) = -2x^3 - 5x + 4$ is -2

A. Functions with Odd Degree (Linear, Cubic, Quintic,...)

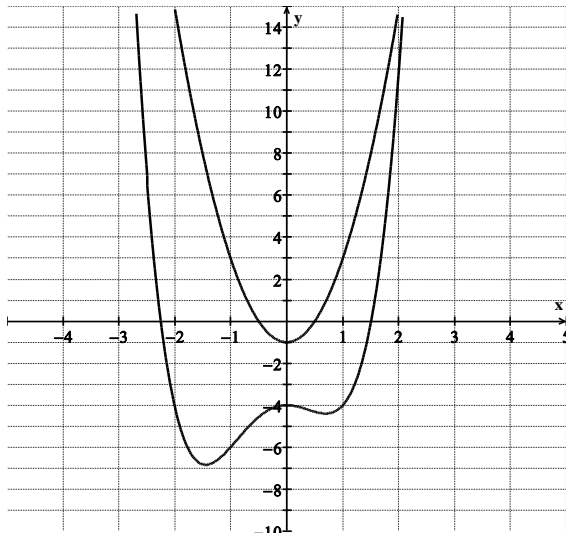


When the leading coefficient is **positive**, the graph extends from quadrant 3 (Q3) to quadrant 1 (Q1).

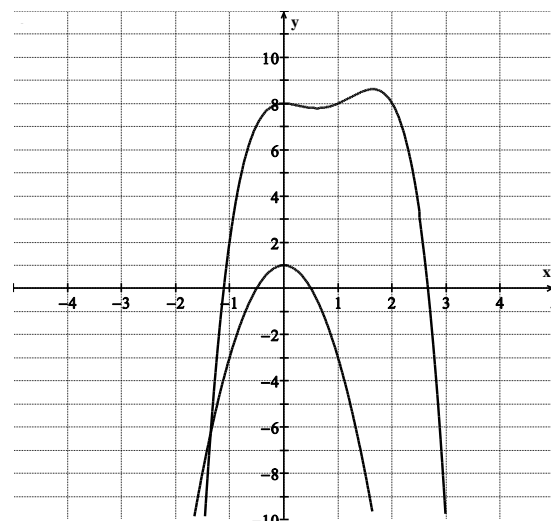


When the leading coefficient is **negative**, the graph extends from quadrant 2 (Q2) to quadrant 4 (Q4).

B. Functions with Even Degree (Quadratic, Quartic,...)



When the leading coefficient is **positive**, the graph extends from quadrant 2 (Q2) to quadrant 1 (Q1).



When the leading coefficient is **negative**, the graph extends from quadrant 3 (Q3) to quadrant 4 (Q4).

Number of Roots

The maximum number of roots is equal to the degree of the function

ie. The maximum number of x-intercepts of a cubic function is 3.

Functions of odd degree have at least one root.