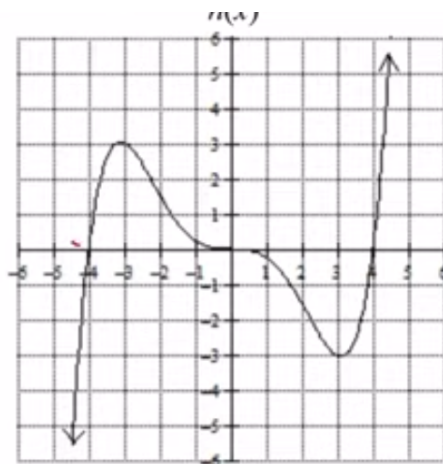


Here are some facts about the concavity and points of inflection of polynomial functions:

A point of inflection for a polynomial function can occur at one of 3 places:

- At a root with **odd** multiplicity ≥ 3
- Between a root of **odd** multiplicity ≥ 3 and the x -coordinate of the nearest local minimum or maximum - the x -coordinate of the point of inflection is approximately halfway between those points.
- Between the x -coordinates of consecutive local extrema - the x -coordinate of the point of inflection is approximately halfway between those points.

Note: Recall that for any function, a point of inflection occurs at a point where the graph of the function has a change in concavity.



Above you are given the graph of the polynomial function $h(x)$.

- Using the graph, determine the equation for $h(x)$.
- Determine the average rate of change of h on $[-3, 4]$. Show the work that leads to your answer.
- For what values of x does the graph of h have a relative extrema? Be specific and justify your answer.
- For what values of x does the graph of h have a point of inflection? Justify your answer.
- For what values of x is the graph of h concave up? Justify your answer.
- For what values of x is the graph of h decreasing? Justify your answer.
- For what values of x is the graph of h both decreasing and concave up? Justify your answer.