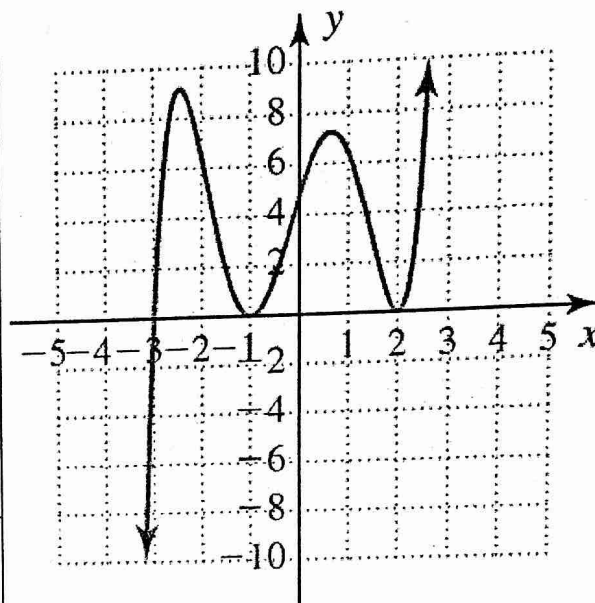


Part II: Open Ended Answers. Please do all of your work in the space provided.

1. The illustration shows the graph of a polynomial function. Answer the following questions:

[2] +2	Is the degree of the polynomial even or odd? odd
[2] +0	Is the function even, odd, or neither? odd.
[2] +2	What is the <u>minimum</u> degree of the polynomial? 5
[2] +2	Is the leading coefficient positive or negative? positive



[4] +3	Why is $(x-2)^2$ necessarily a factor of the polynomial? because when we plug in 2 in the function, it equals 0 and it touches the x-axis in $x=2$
[4] +0	Formulate a polynomial function whose graph could look like the one shown. $x^5 - 2x^3 + 6x + 1$

2. Find the complex zeros of the polynomial $f(x)$ and write it in factored form:

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

+3	Factored form: [4] $f(x) = (x-1)(x+2)(x^2+1)$
+2	Zeros: [4] 1, -2

$$\begin{array}{r}
 1 \overline{) 1 \ 1 \ 0 \ 2 \ -4} \\
 \underline{1 \ 2 \ 2 \ 4} \\
 1 \ 2 \ 2 \ 4 \ 0 \\
 \\
 x^3 + 2x^2 + 2x + 4 \\
 \\
 -8 \\
 (x+2) \overline{) 1 \ 2 \ 2 \ 4} \\
 \underline{-2 \ 0 \ -4} \\
 1 \ 0 \ 2 \ 0 \\
 \\
 x^2 + 2
 \end{array}$$