Math Worksheet: Graph Polynomial (2)

1. Find all zeros of the polynomial $f(x)$ given below.

$$f(x) = x^4 + x^3 - 11x^2 - 9x + 18$$

Apply the rational zeros of a polynomial theorem possible rational zeros are given by:

$$x = \pm 1, \pm 2, \pm 3, \pm 6, \pm 9, \pm 18$$

It can easily be checked that $f(1) = 0$, $f(3) = 0$, $f(-2) = 0$ and $f(-3) = 0$

Hence the zeros of f are : $1, 3, -2, -3$

2. Express $f(x)$ as a product of linear terms.

$$f(x) = (x-1)(x-3)(x+2)(x+3)$$

Since leading Coefficient is 1.

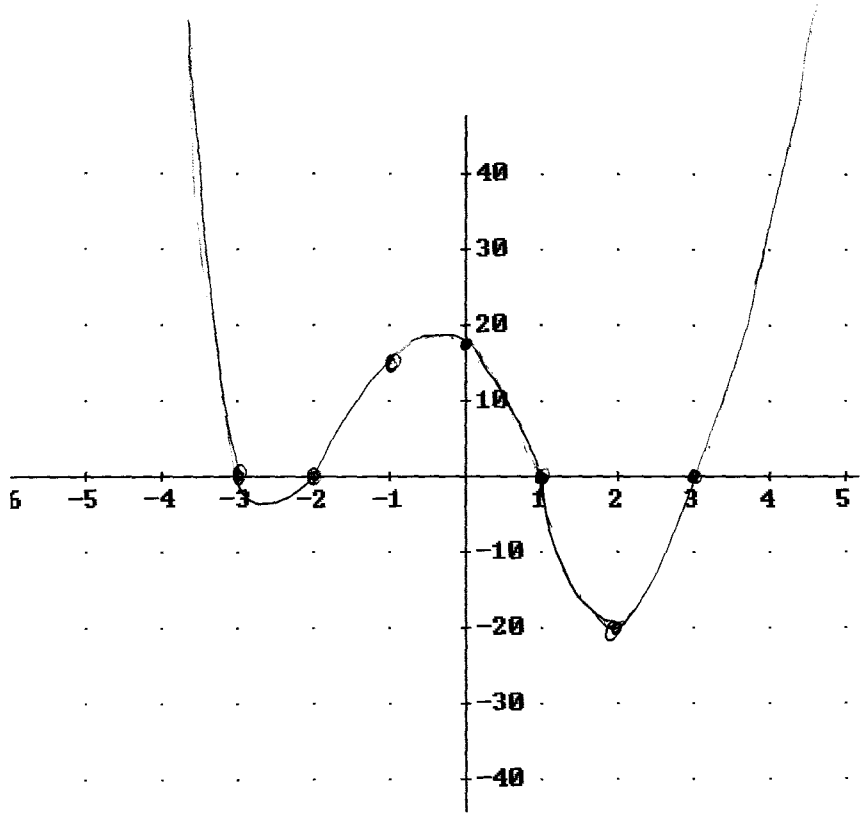
3. Graph f.

Degree = 4

leading Coefficient = 1 > 0.

Hence $f(x) \longrightarrow +\infty$

as $x \longrightarrow \pm\infty$.



More points

x	f(x)
2	-20
0	18
-1	16