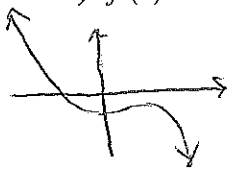
Algebra 2 Name_____

End Behavior of Polynomial Functions

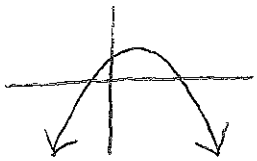
Describe the end behavior of each function. Follow the format of the first two completed examples. Show a rough sketch of the possible graph of the function.

1) $f(x) = -x^3 + 4x^2 - 6$



As $x \to -\infty$, $f(x)$ increases.
As $x \to +\infty$, $f(x)$ decreases

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



As $x \to -\infty$, $f(x)$ decreases.
As $x \to +\infty$, $f(x)$ decreases.

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

4) $f(x) = -x^2 - 6x - 5$

5) $f(x) = x^5 - 2x^3 + 1$

6) $f(x) = -x^5 + 2x^3 - x + 3$

7) $f(x) = x^2 + 2x - 5$

8) $f(x) = x^2 + 6x + 5$

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

10) $f(x) = -x^2 - 8x - 18$

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

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

13) $f(x) = x^3 - 2x^2$

14) $f(x) = x^4 + 2x^3 - 2x^2 + 5$

15) $f(x) = 2x^2 + 4x + 1$

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

17) $f(x) = x^5 - 4x^3 + x$

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

19) $f(x) = 2x^2 - 16x + 27$

20) $f(x) = x^5 - 3x^3 + x - 2$

21) $f(x) = -x^3 + 3x^2 - 6$

22) $f(x) = -x^2 - 4x - 4$

23) $f(x) = -x^2 - 2x + 2$

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