Algebra 2 Name_____

Synthetic Substitution

Evaluate each function at the given value.

1) $f(n) = n^4 - 3n^3 - 2n^2 - 4n - 19$ at $n = 4$

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

3) $f(m) = m^3 + m^2 - 26m + 32$ at $m = 4$

4) $f(n) = n^3 - 8n^2 + 13n + 4$ at $n = 5$

5) $f(n) = 4n^4 - 9n^3 - 15n^2 + 20n - 14$ at $n = 3$

6) $f(n) = n^3 - 2n^2 - 7n + 16$ at $n = 3$

7) $f(x) = x^3 - 24x - 2$ at $x = 5$

8) $f(x) = 6x^4 + 15x^3 - 16x - 2$ at $x = -2$

9) $f(a) = a^3 + a^2 - 34a - 34$ at $a = -6$

10) $f(n) = n^3 - 2n^2 - 2n - 19$ at $n = 4$

11) $f(x) = -5x^3 + 28x^2 - 19x + 30$ at $x = 5$

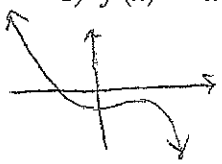
12) $f(n) = -n^3 + 5n^2 - 2n - 18$ at $n = 2$

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.

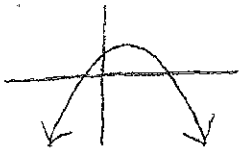
1) $f(x) = -x^3 + 4x^2 - 6$



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