

## Graphing Polynomial Functions: Basic Shape

Describe the end behavior of each function.

1)  $f(x) = x^3 - 4x^2 + 7$

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

$$f(x) \rightarrow \underline{\hspace{2cm}} \text{ as } x \rightarrow +\infty$$

$$f(x) \rightarrow \underline{\hspace{2cm}} \text{ as } x \rightarrow -\infty$$

3)  $f(x) = x^3 - 9x^2 + 24x - 15$

4)  $f(x) = x^2 - 6x + 11$

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

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

7)  $f(x) = 2x^2 + 12x + 12$

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

State the maximum number of turns the graph of each function could make.

9)  $f(x) = x^5 - 4x^3 + 5x + 1$

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

Focus on y-int & # of turns

Sketch the general shape of each function.

11)  $f(x) = -x^2 - 6x - 7$

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

13)  $f(x) = x^2 + 2$

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

15)  $f(x) = -x^5 + 4x^3 - x + 1$

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

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

18)  $f(x) = -x^3 + 10x^2 - 33x + 32$