

Graphing Polynomial Functions: Basic Shape

Date_____ Period____

Describe the end behavior of each function.

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

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

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

Sketch the general shape of each function.

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

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

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

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

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

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

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

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

Graphing Polynomial Functions: Basic Shape

Date_____ Period____

Describe the end behavior of each function.

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

 $f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow +\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow -\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow -\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow +\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$

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

 $f(x) \rightarrow +\infty$ as $x \rightarrow -\infty$
 $f(x) \rightarrow +\infty$ as $x \rightarrow +\infty$
State the maximum number of turns the graph of each function could make.

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

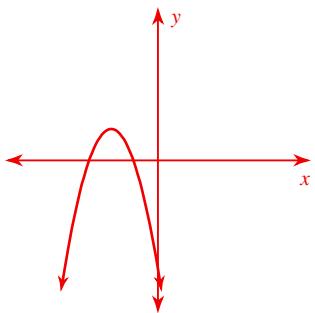
Max # Turns: 4

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

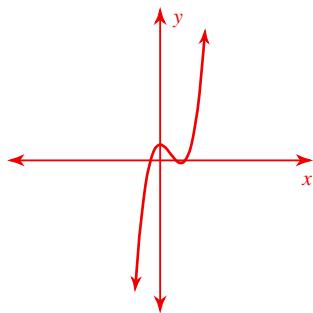
Max # Turns: 1

Sketch the general shape of each function.

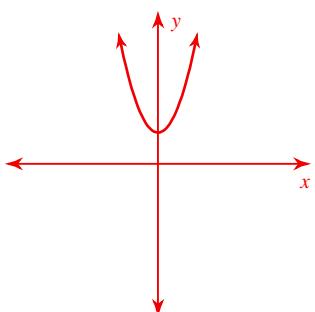
11) $f(x) = -x^2 - 6x - 7$



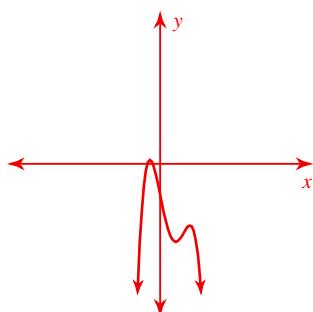
12) $f(x) = x^3 - 2x^2 + 1$



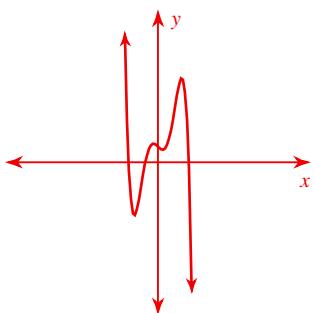
13) $f(x) = x^2 + 2$



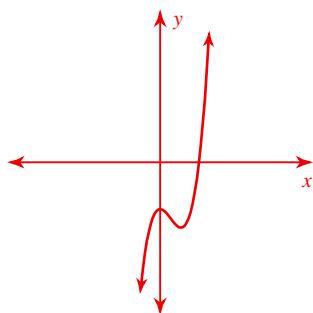
14) $f(x) = -x^4 + 3x^3 - 2x - 5x$



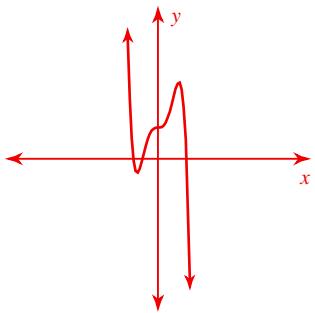
15) $f(x) = -x^5 + 4x^3 - x + 1$



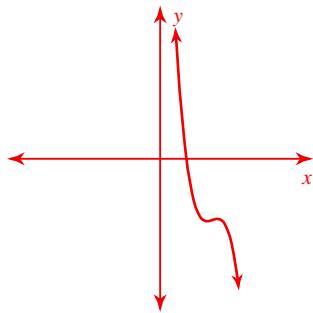
16) $f(x) = x^3 - 2x^2 - 3$



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



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



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