

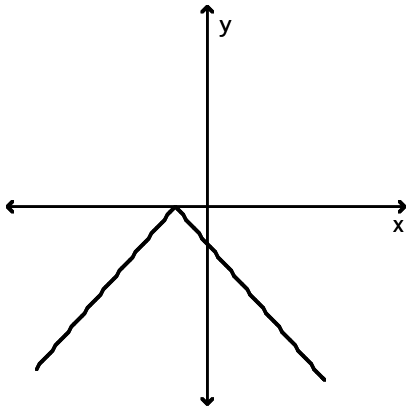
# Polynomial Functions of Higher Degree

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

Determine whether the graph shown is the graph of a polynomial function.

1)

1) \_\_\_\_\_

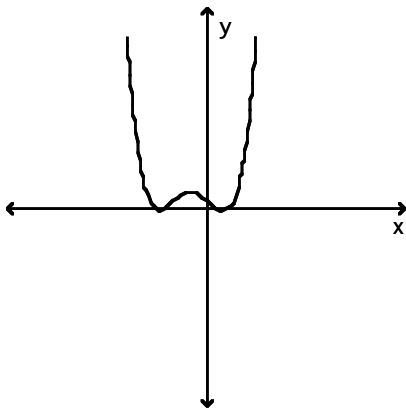


A) polynomial function

B) not a polynomial function

2)

2) \_\_\_\_\_

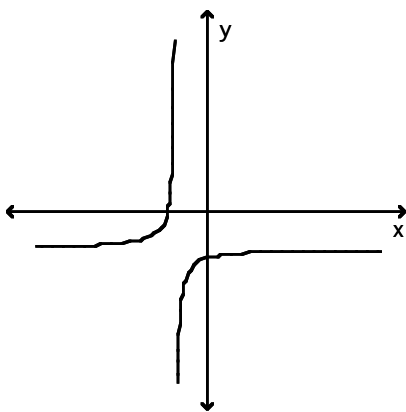


A) not a polynomial function

B) polynomial function

3)

3) \_\_\_\_\_



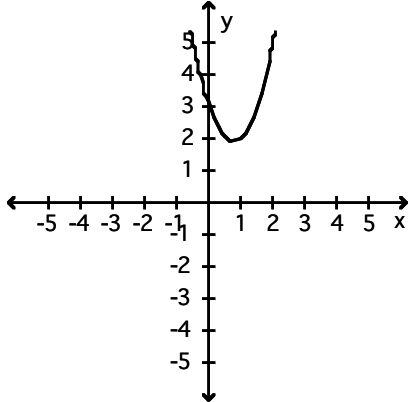
A) not a polynomial function

B) polynomial function

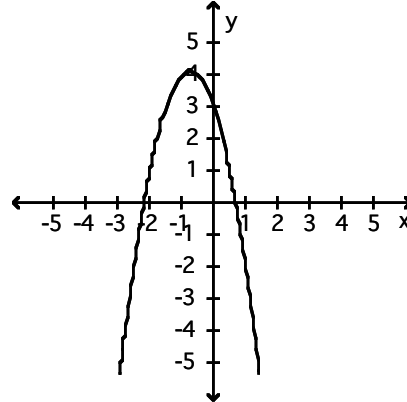
Use the Leading Coefficient Test to determine the end behavior of the polynomial function. Then use this end behavior to match the function with its graph.

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

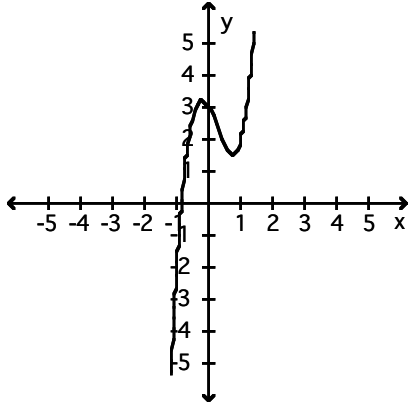
A) rises to the left and rises to the right



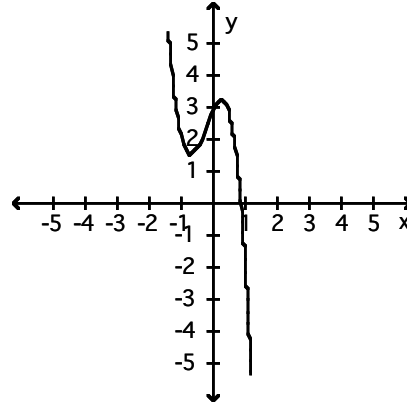
B) falls to the left and falls to the right



C) falls to the left and rises to the right



D) rises to the left and falls to the right



4) \_\_\_\_\_

Use the Leading Coefficient Test to determine the end behavior of the polynomial function.

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

A) falls to the left and falls to the right

B) rises to the left and falls to the right

C) rises to the left and rises to the right

D) falls to the left and rises to the right

5) \_\_\_\_\_

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

A) rises to the left and falls to the right

B) rises to the left and rises to the right

C) falls to the left and rises to the right

D) falls to the left and falls to the right

6) \_\_\_\_\_

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

A) rises to the left and falls to the right

B) falls to the left and falls to the right

C) rises to the left and rises to the right

D) falls to the left and rises to the right

7) \_\_\_\_\_

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

A) falls to the left and falls to the right

B) rises to the left and rises to the right

C) falls to the left and rises to the right

D) rises to the left and falls to the right

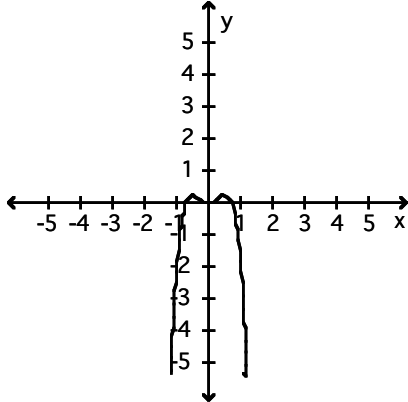
8) \_\_\_\_\_

Use the Leading Coefficient Test to determine the end behavior of the polynomial function. Then use this end behavior to match the function with its graph.

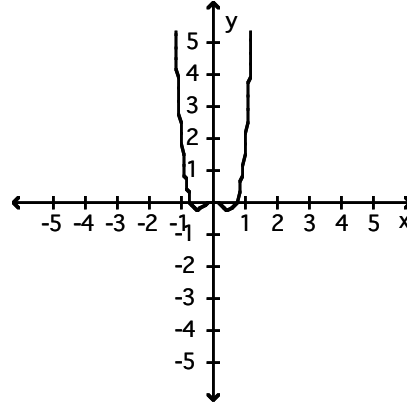
9)  $f(x) = 4x^4 - 2x^2$

9) \_\_\_\_\_

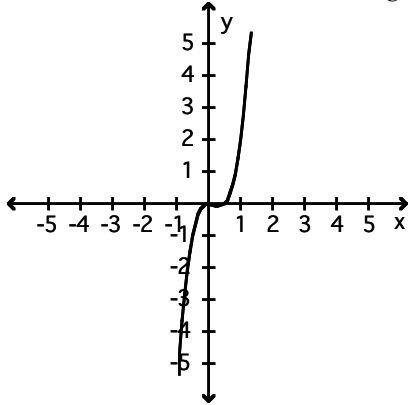
A) falls to the left and falls to the right



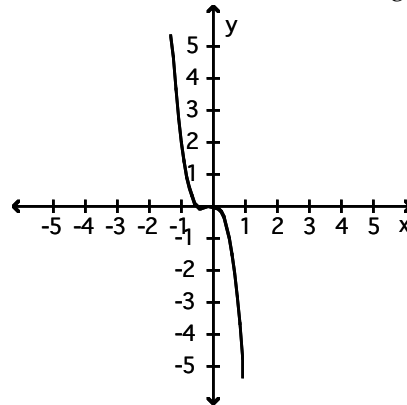
B) rises to the left and rises to the right



C) falls to the left and rises to the right



D) rises to the left and falls to the right



Find the zeros of the polynomial function.

10)  $f(x) = x^3 + x^2 - 42x$

10) \_\_\_\_\_

A)  $x = -7, x = 6$

B)  $x = 0, x = 5, x = 6$

C)  $x = 0, x = -7, x = 6$

D)  $x = 5, x = 6$

11)  $f(x) = x^3 - 10x^2 + 25x$

11) \_\_\_\_\_

A)  $x = 0, x = -5$

B)  $x = 0, x = 5$

C)  $x = 1, x = 5$

D)  $x = 0, x = -5, x = 5$

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

12) \_\_\_\_\_

A)  $x = 1, x = -3, x = 3$

B)  $x = -3, x = 3$

C)  $x = 9$

D)  $x = -1, x = 1, x = -3$

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

13) \_\_\_\_\_

A)  $x = -4, x = -2, x = 2$

B)  $x = -2, x = 2$

C)  $x = 4, x = -2, x = 2$

D)  $x = -4, x = 4$

Answer Key

Testname: POLYNOMIAL FUNCTIONS OF HIGHER DEGREE

- 1) B
- 2) B
- 3) A
- 4) D
- 5) C
- 6) C
- 7) B
- 8) D
- 9) B
- 10) C
- 11) B
- 12) D
- 13) A