

Give the degree, leading coefficient, and fill in the end behavior.

1. $f(x) = -6x^3 + 8x$

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

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

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

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

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

4. $f(x) = x^5 - 6x^7 - 4x$

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

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

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

6. $f(x) = -11x^4 - 7x^2$

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

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

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty, y \rightarrow$ _____

As $x \rightarrow -\infty, y \rightarrow$ _____

8. $f(x) = -5x^4 - 2$

DEGREE: _____

LEADING COEFFICIENT: _____

END BEHAVIOR:

As $x \rightarrow \infty, y \rightarrow$ _____

As $x \rightarrow -\infty, y \rightarrow$ _____

Use what you know about end behavior to match the polynomial function with its graph.

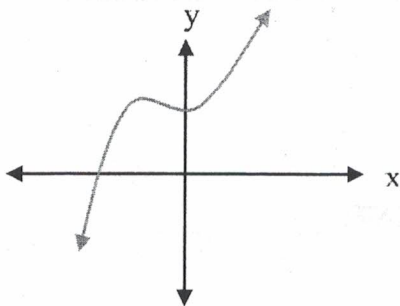
___ 9. $f(x) = 4x^6 - 3x^2 + 5x - 2$

___ 10. $f(x) = -2x^3 + 5x^2$

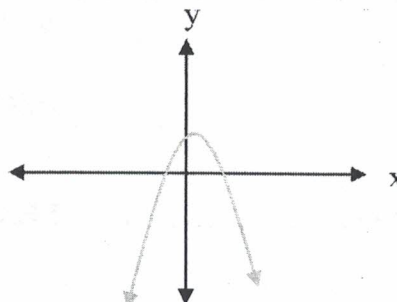
___ 11. $f(x) = -x^4 + 1$

___ 12. $f(x) = 6x^3 + 1$

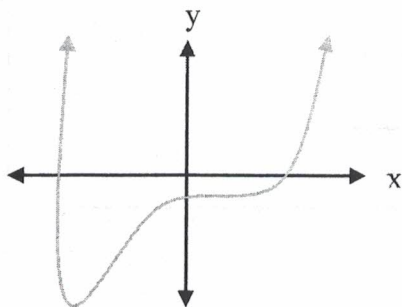
A.



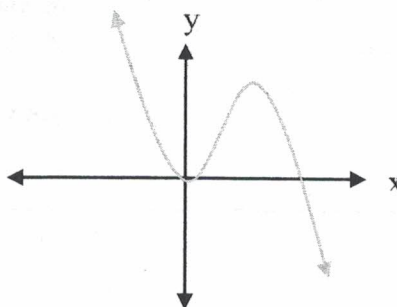
B.



C.



D.



Find the zeros of the polynomials, and state the multiplicity if there are multiple zeros.

13. $y = (x+3)^2$

14. $y = 2x^3 + x^2 - x$

15. $y = (x+1)^4(x-1)(x-2)$

Write a polynomial function, in standard form, with the given zeros:

16. $x = 5, 4, -3$

17. $x = -1, 0, 1$

18. $x = 0, 0, -2, 3$