Lesson 9 Practice Problems

1. Match the polynomial with its end behavior.

   A. $f(x) = -2x + 3$

   B. $f(x) = x^2 - 6x + 3$

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

   D. $f(x) = 7 - x^4$

   1. As x gets larger and larger in either the positive or negative direction, $f(x)$ gets larger and larger in the positive direction.

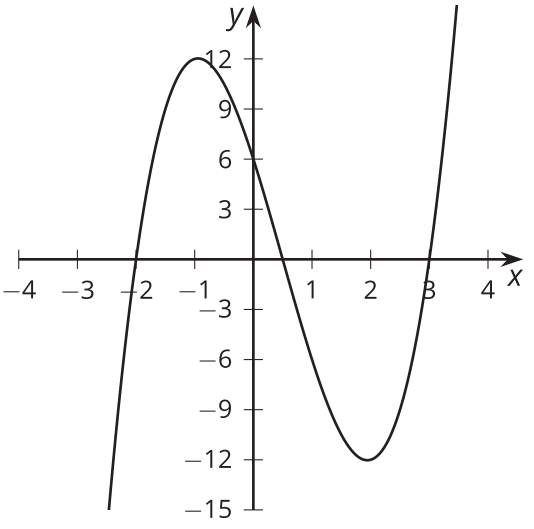
   2. As x gets larger and larger in the positive direction, $f(x)$ gets larger and larger in the positive direction. As x gets larger and larger in the negative direction, $f(x)$ gets larger and larger in the negative direction.

   3. As x gets larger and larger in the positive direction, $f(x)$ gets larger and larger in the negative direction. As x gets larger and larger in the negative direction, $f(x)$ gets larger and larger in the positive direction.

   4. As x gets larger and larger in either the positive or negative direction, $f(x)$ gets larger and larger in the negative direction.

2. State the degree and end behavior of $f(x) = -x^3 + 5x^2 + 6x + 1$. Explain or show your reasoning.

3. The graph of a polynomial function f is shown. Select **all** the true statements about the polynomial.



A. The degree of the polynomial is even.

B. The degree of the polynomial is odd.

C. The leading coefficient is positive.

D. The leading coefficient is negative.

E. The constant term of the polynomial is positive.

F. The constant term of the polynomial is negative.

4. Write the sum of $5x^2 + 2x - 10$ and $2x^2 + 6$ as a polynomial in standard form.

(From Unit 2, Lesson 4.)

5. State the degree and end behavior of $f(x) = 4x^3 + 3x^5 - x^2 - 2$. Explain or show your reasoning.

(From Unit 2, Lesson 8.)

6. Select **all** the polynomial functions whose graphs have x-intercepts at $x = 4, -\frac{1}{4}, -2$.

A. $(x + 4)(4x - 1)(x - 2)$

B. $(x - 4)(4x + 1)(x + 2)$

C. $(x - 4)(4x - 1)(x - 2)$

D. $(x + 4)(4x + 1)(x + 2)$

E. $(2x + 4)(4x - 1)(x - 2)$

F. $(4x - 16)(4x + 1)(x + 2)$

(From Unit 2, Lesson 7.)