

Lesson 8 Practice Problems

1. Match each polynomial with its end behavior. Some end behavior options may not have a matching polynomial.

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

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

C. $f(x) = 9 + x^4$

D. $f(x) = 2x + 5$

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. Which polynomial function gets larger and larger in the negative direction as x gets larger and larger in the negative direction?

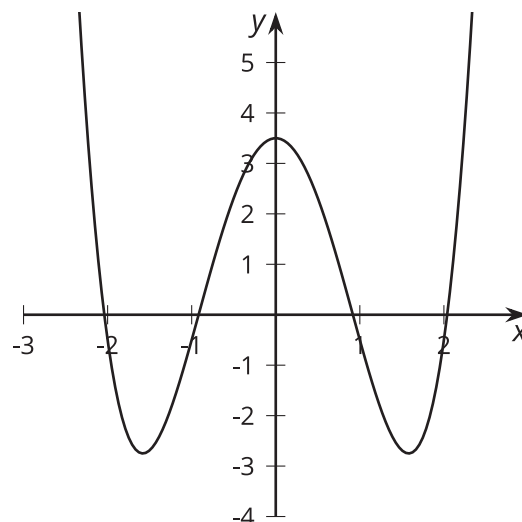
A. $f(x) = 5x^2 - 2x + 1$

B. $f(x) = 6x^3 + 4x^2 - 15x + 32$

C. $f(x) = 7x^4 - 2x^3 + 3x^2 + 8x - 10$

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

3. The graph of a polynomial function f is shown. Which statement about the polynomial is true?



- A. The degree of the polynomial is even.
 - B. The degree of the polynomial is odd.
 - C. The constant term of the polynomial is even.
 - D. The constant term of the polynomial is odd.
4. Andre wants to make an open-top box by cutting out corners of a 22 inch by 28 inch piece of poster board and then folding up the sides. The volume $V(x)$ in cubic inches of the open-top box is a function of the side length x in inches of the square cutouts.
- a. Write an expression for $V(x)$.
 - b. What is the volume of the box when $x = 6$?
 - c. What is a reasonable domain for V in this context?

(From Unit 2, Lesson 1.)

5. For each polynomial function, rewrite the polynomial in standard form. Then state its degree and constant term.

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

b. $g(x) = -2(3x + 1)(x + 2)(x - 3)$

(From Unit 2, Lesson 6.)

6. Kiran wrote $f(x) = (x - 3)(x - 7)$ as an example of a function whose graph has x -intercepts at $x = -3, -7$. What was his mistake?

(From Unit 2, Lesson 7.)

7. A polynomial function, $f(x)$, has x -intercepts at $(-6, 0)$ and $(2, 0)$. What is one possible factor of $f(x)$?

(From Unit 2, Lesson 7.)