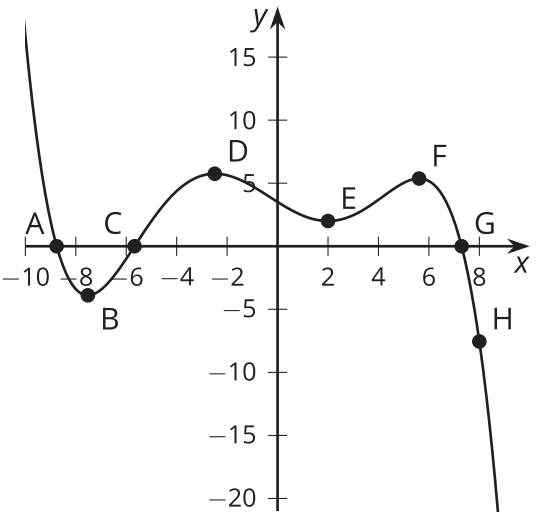
Lesson 3 Practice Problems

1. Select **all** points where relative minimum values occur on this graph of a polynomial function.



A. Point A

B. Point B

C. Point C

D. Point D

E. Point E

F. Point F

G. Point G

H. Point H

2. Add one term to the polynomial expression $14x^{19} - 9x^{15} + 11x^4 + 5x^2 + 3$ to make it into a 22nd degree polynomial.

3. Identify the degree, leading coefficient, and constant value of each of the following polynomials:

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

   b. $h(x) = 2x^4 + x^3 - 3x^2 - x + 1$

   c. $g(x) = 13.2x^3 + 3x^4 - x - 4.4$

4. We want to make an open-top box by cutting out corners of a square piece of cardboard and folding up the sides. The cardboard is a 9 inch by 9 inch square. 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 $x = 1$?

   c. What is a reasonable domain for V in this context?

   (From Unit 2, Lesson 1.)

5. Consider the polynomial function p given by $p(x) = 7x^3 - 2x^2 + 3x + 10$. Evaluate the function at $x = -3$.

   (From Unit 2, Lesson 2.)

6. An open-top box is formed by cutting squares out of an 11 inch by 17 inch piece of paper and then folding up the sides. The volume $V(x)$ in cubic inches of this type of open-top box is a function of the side length x in inches of the square cutouts and can be given by $V(x) = (17 - 2x)(11 - 2x)(x)$. Rewrite this equation by expanding the polynomial.

(From Unit 2, Lesson 2.)