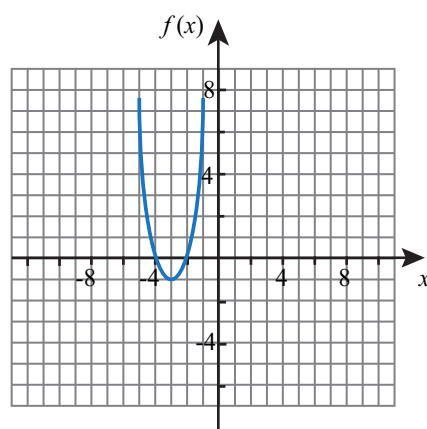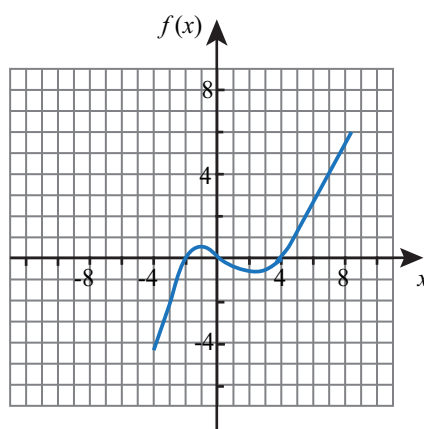# Arithmetic with Polynomials - Answers

Graph of $f(x) = x^2 - 7x + 12$

Graph of $f(x) = x^3 - 2x^2 - 8x$

1. What are the x-intercepts of the function $f(x) = x^2 - 7x + 12$?
   Ans: -4 and -3.

2. Draw a rough graph of the function $f(x) = x^2 - 7x + 12$.

3. What are the x-intercepts of the function $f(x) = x^3 - 2x^2 - 8x$?
   Ans: -2, 0, and 4.

4. Draw a rough graph of the function $f(x) = x^3 - 2x^2 - 8x$.

5. Find the x-intercepts of the polynomial $x^3 - x^2 - 9x + 9$.
   Ans: 3, -3, 1.

6. Find the y-intercepts of the polynomial

   $x^3 - x^2 - 9x + 9$.
   Ans: 9.

7. Find the x-intercepts of the polynomial $x^4 - x^2$.
   Ans: -1, 0, 1.

8. Do we expect the polynomial $x^4 - x^2$ to be facing up or down? Why?
   Ans: Up, because coefficient for x^4 is positive.

9. Find the x-intercepts of the polynomial $-x^2 + 16$.
   Ans: -4, 4.

10. Do we expect the polynomial $-x^2 + 16$ to be facing up or down? Why?
    Ans: Down, because coefficient for x^2 is negative.

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