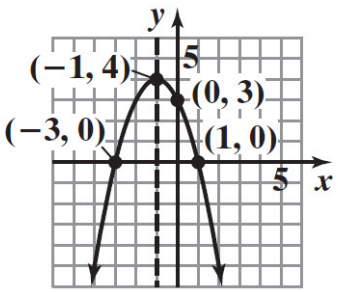
Section 2.2: 13-18

13.

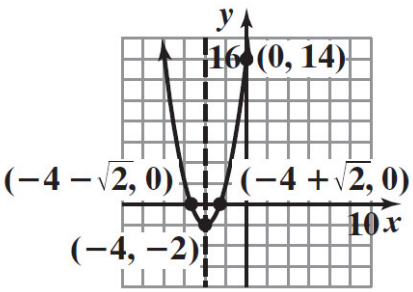


$f(x) = -(x + 1)^2 + 4$

axis of symmetry; $x = -1$

domain: $(-\infty, \infty)$; range: $(-\infty, 4]$

14.



$f(x) = (x + 4)^2 - 2$

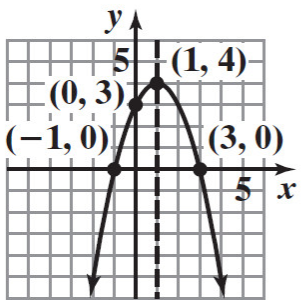
axis of symmetry: $x = -4$

domain: $(-\infty, \infty)$; range: $[-2, \infty)$

17. a. maximum is -57 at $x = 7$

b. domain: $(-\infty, \infty)$; range: $(-\infty, -57]$

15

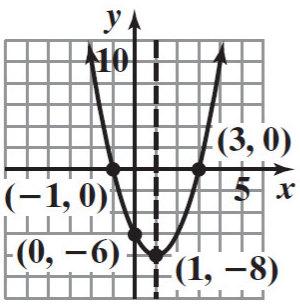


$f(x) = -x^2 + 2x + 3$

axis of symmetry: $x = 1$

domain: $(-\infty, \infty)$; range: $(-\infty, 4]$

16.



$f(x) = 2x^2 - 4x - 6$

axis of symmetry: $x = 1$

domain: $(-\infty, \infty)$; range: $[-8, \infty)$

18. a. minimum is 685 at $x = -3$

b. domain: $(-\infty, \infty)$; range:

$[685, \infty]$

Chapter 2 Review – answers only

Section 2.3: 24-27, 30-40

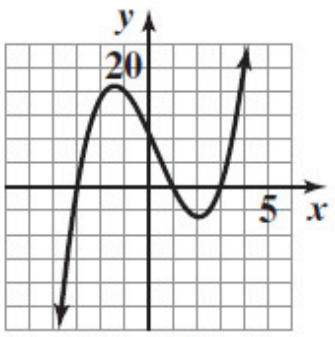
24. c **25.** b **26.** a **27.** d

30. x=1, multiplicity 1, crosses x-axis
x = -2, multiplicity 2, touches x-axis
x = -5, multiplicity 3, crosses x-axis

31. x = -5, multiplicity 1, crosses x-axis
x = 5, multiplicity 2, touches x-axis

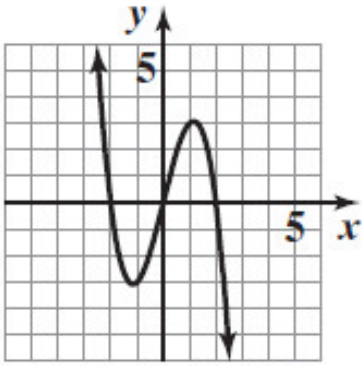
32. f(1) is negative and f(2) is positive. Therefore, by the Intermediate Value Theorem, f has a real zero between 1 and 2.

33. ↓↑
no symmetry



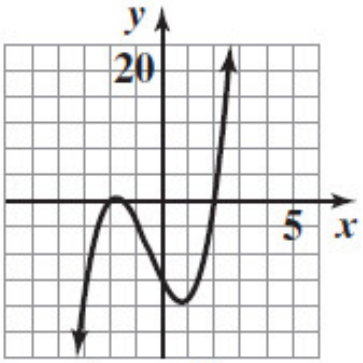
$f(x) = x^3 - x^2 - 9x + 9$

34. ↑↓
odd function (origin symmetry)



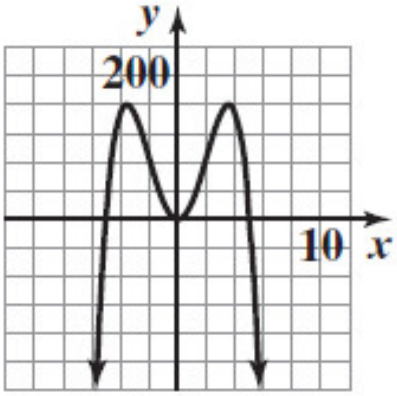
$f(x) = 4x - x^3$

35. ↓↑
no symmetry



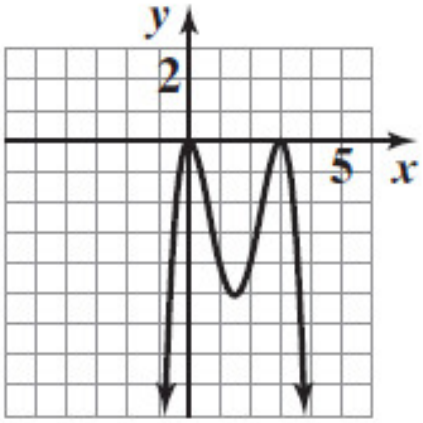
$f(x) = 2x^3 + 3x^2 - 8x - 12$

36. ↓↓
Even function
(y-axis symmetry)



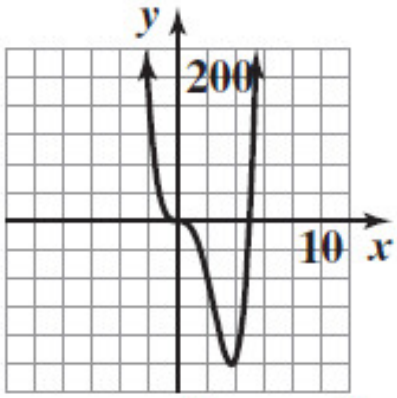
$f(x) = -x^4 + 25x^2$

37. ↓↓
no symmetry



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

38. ↑↑
no symmetry

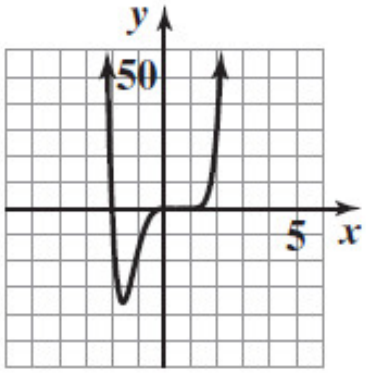


$f(x) = 3x^4 - 15x^3$

Chapter 2 Review – answers only

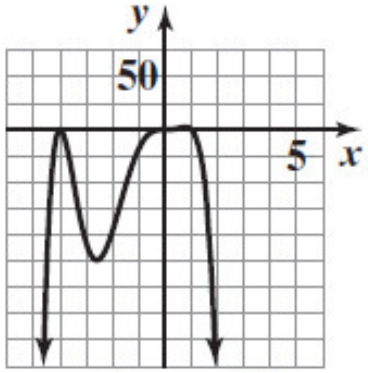
Section 2.3: 24-27, 30-40

39.



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

40.



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

Section 2.4: 41-48

41. $4x^2 - 7x + 5 - \dfrac{4}{x+1}$

42. $2x^2 - 4x + 1 - \dfrac{10}{5x-3}$

43. $2x^2 + 3x - 1$ **44.** $3x^3 - 4x^2 + 7$

45. $3x^3 + 6x^2 + 10x + 10 + \dfrac{20}{x-2}$ **46.** -5697

47. $2, \dfrac{1}{2}, -3$ **48.** $\{4, -2 \pm \sqrt{5}\}$ **49.** $\pm 1, \pm 5$