

**Sec Math 2 Honors: Semester 1 Review
Answer Section**

1. 3^8
2. $\frac{42}{x^5}$
3. 32
4. $x^{\frac{1}{5}}$
5. $8k^{24}$
6. m^5
7. $\frac{16x^{10}}{81}$
8. $\frac{81y^{12}}{b^{20}}$
9. $-10g^3 + 2g^2 + 4g - 9$; cubic polynomial
10. $11u^3 + 6u^2 - 3u + 9$
11. $2x^4 + 2x + 10$
12. $15a^6 + 15a^2b + 10a^2$
13. $8w^4(3w^3 + 4)$
14. $-10h^2 + 30h - 20$
15. $6k^3 - 7k^2 - 35k - 20$
16. $36m^2 + 96m + 64$
17. $49p^2 - 4$
18. $(w + 7)(w + 11)$
19. $(d - 10)(d - 2)$
20. $(d - 8)(d + 9)$
21. $(x - 7y)(x - 8y)$
22. $(4g - 3)(g + 2)$
23. $(d + 5)^2$
24. $(s - 10)(s + 10)$
25. $(k + 4h)(k - 4h)$
26. $2(4x + 5)^2$
27. $3x(x^2 - 6)(2x - 3)$
28. A
29. 2.94 s
30. 3 s; 174 ft
31. -6, 6
32. -3, $1\frac{3}{4}$
33. $\frac{1}{3}$, 4

34. $\frac{1}{3}, -\frac{4}{3}$

35. 1

36. 3, -5

37. 123.73 m

38. (-3, -1) and (1, 7)

39. $3i$

40. $-1 + i$

41. $-1 - 3i$

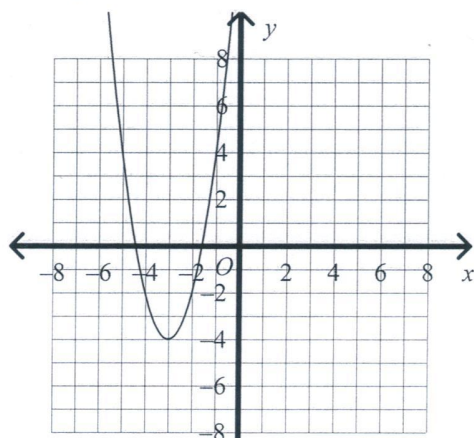
42. 48

43. $(23 + 2i)$

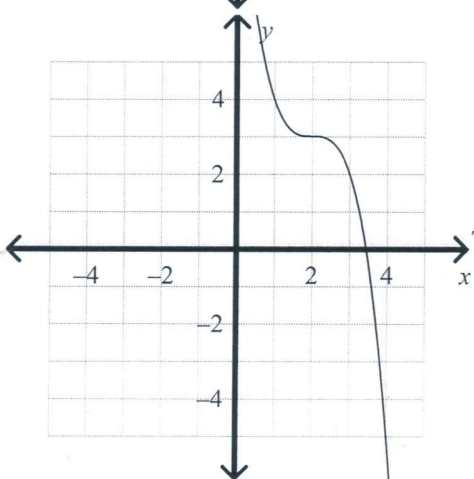
44. $y = 8(x - 2)^3 - 7$

45. $y = -\frac{1}{5}(x + 7)^3$

46.

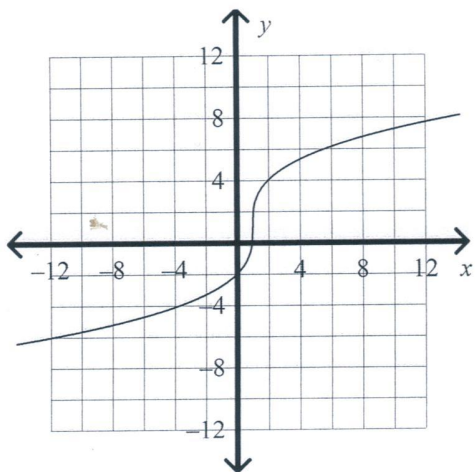


47.

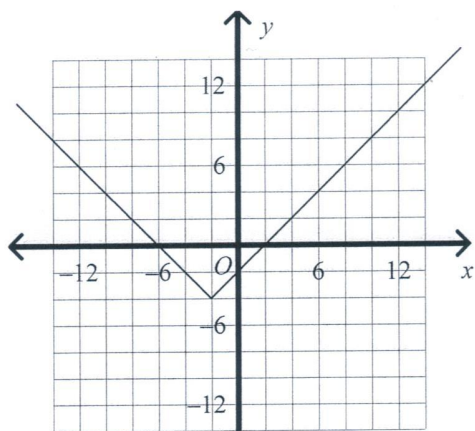


The end behavior is up and down.

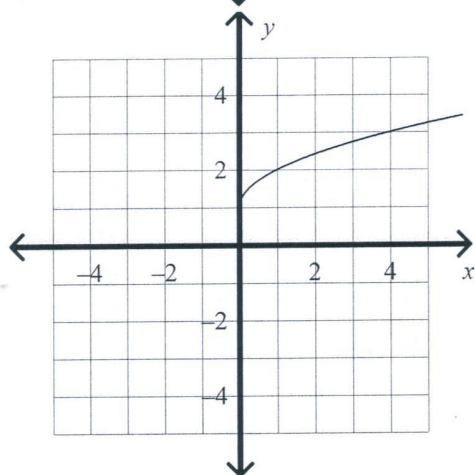
48.

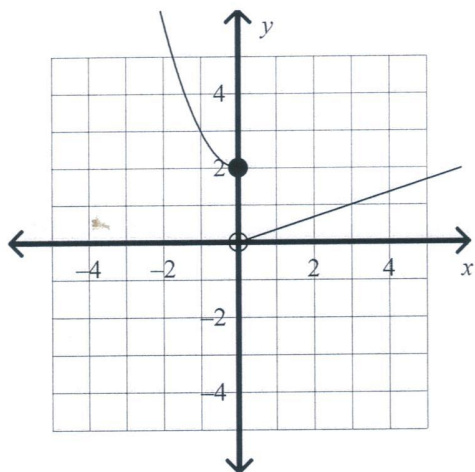


49.



50.





51.

$$52. f(x) = \begin{cases} -x - 2, & \text{for } x \leq -1 \\ -1, & \text{for } -1 < x \leq 2 \\ -\frac{3}{2}x + 2, & \text{for } x \geq 2 \end{cases}$$

53. $y = 4\sqrt{x-2} - 4.$

It is the graph of $y = 4\sqrt{x}$ translated 2 units right and 4 units down.

54. $y = 2\sqrt[3]{x-4} - 5.$

It is the graph of $y = 2\sqrt[3]{x}$ translated 4 units right and 5 units down.

55. $x - 11$

56. $-2x^2 + 8; -42$

57. $-2x - 2$

58. $2x + 5$

59. $21x^2 + 32x + 12$; all real numbers

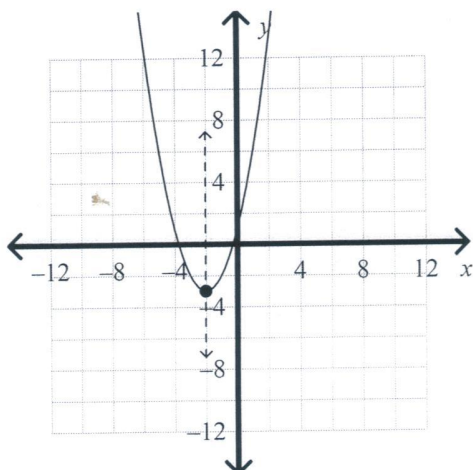
60. -53

61. 9

62. one solution

63. one solution

64.

axis of symmetry: $x = -2$ vertex: $(-2, -3)$ 65. focus: $(0, 1)$; directrix: $y = -1$

66. $x = \frac{1}{12}(y - 5)^2 + 2$

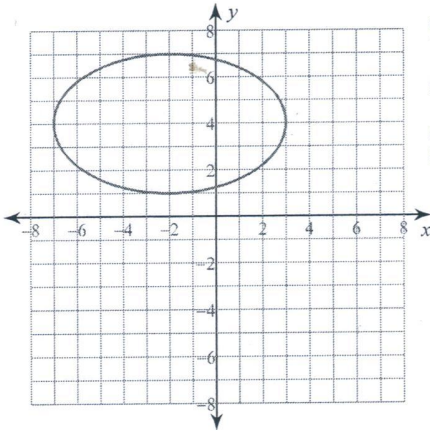
67. $(x - 4)^2 + (y + 7)^2 = 49$

68. $(x + 6)^2 + (y - 3)^2 = 25$

69. center at $(5, 2)$; radius 870. center at $(-2, -1)$; radius 5

Identify the center, vertices, foci, length of the major axis, and length of the minor axis of each. Then sketch the graph.

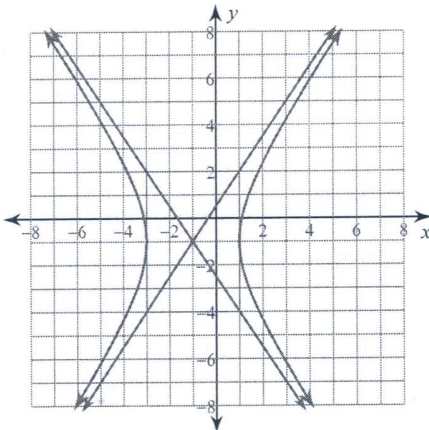
$$71) \frac{(x+2)^2}{25} + \frac{(y-4)^2}{9} = 1$$



Center: $(-2, 4)$
 Vertices: $(3, 4)$
 $(-7, 4)$
 Foci: $(2, 4)$
 $(-6, 4)$
 Major Axis: 10 units
 Minor Axis: 6 units

Identify the vertices, foci, length of the transverse axis, and length of the conjugate axis of each. Then sketch the graph.

$$72) \frac{(x+1)^2}{4} - \frac{(y+1)^2}{9} = 1$$



Vertices: $(1, -1)$
 $(-3, -1)$
 Foci: $(-1 + \sqrt{13}, -1)$
 $(-1 - \sqrt{13}, -1)$
 Transverse Axis: 4 units
 Conjugate Axis: 6 units