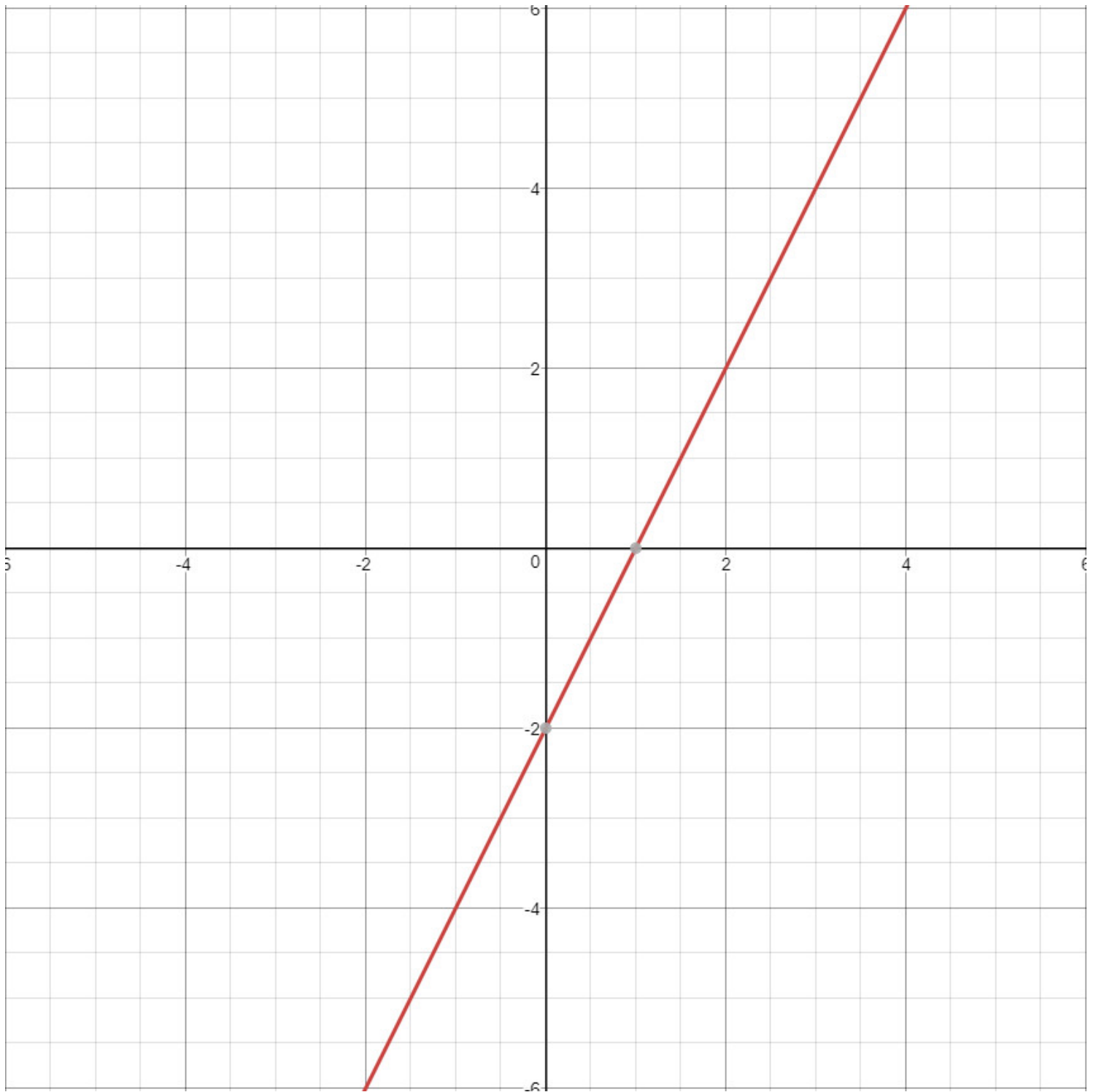


Chapter 1 Review – answers only

Section 1.1 : 1-4, 6

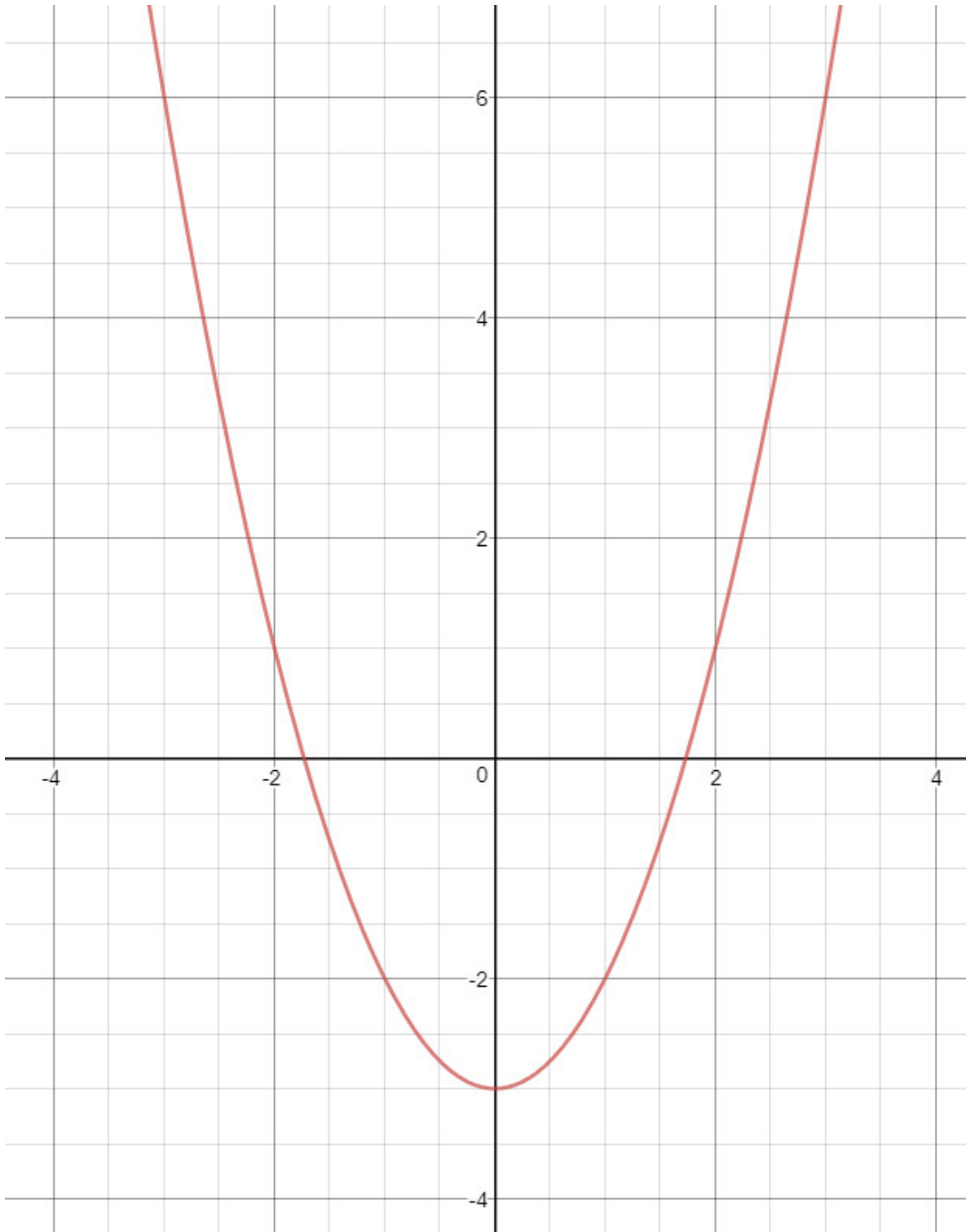
1.



Chapter 1 Review – answers only

Section 1.1 : 1-4, 6

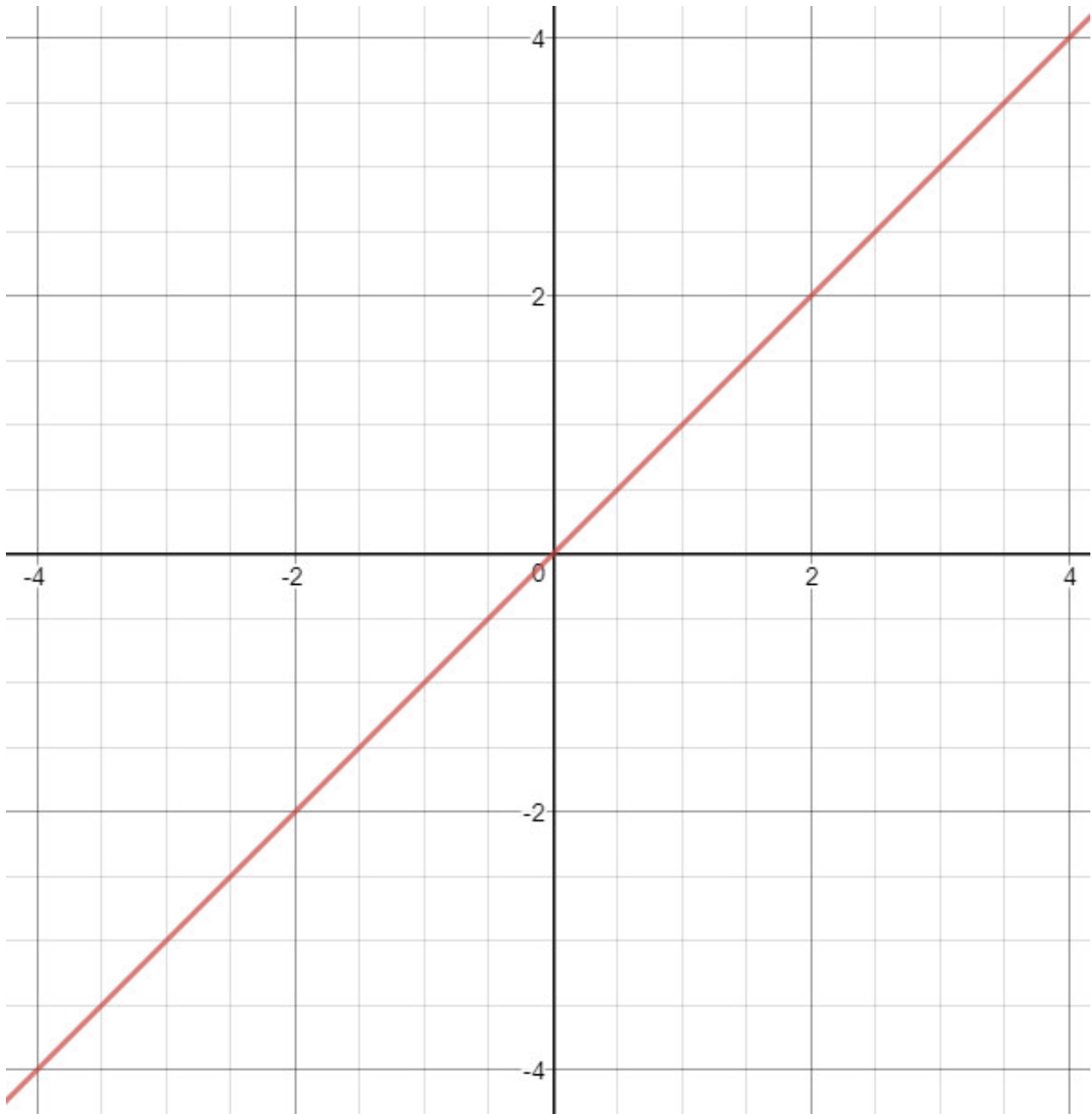
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Chapter 1 Review – answers only

Section 1.1 : 1-4, 6

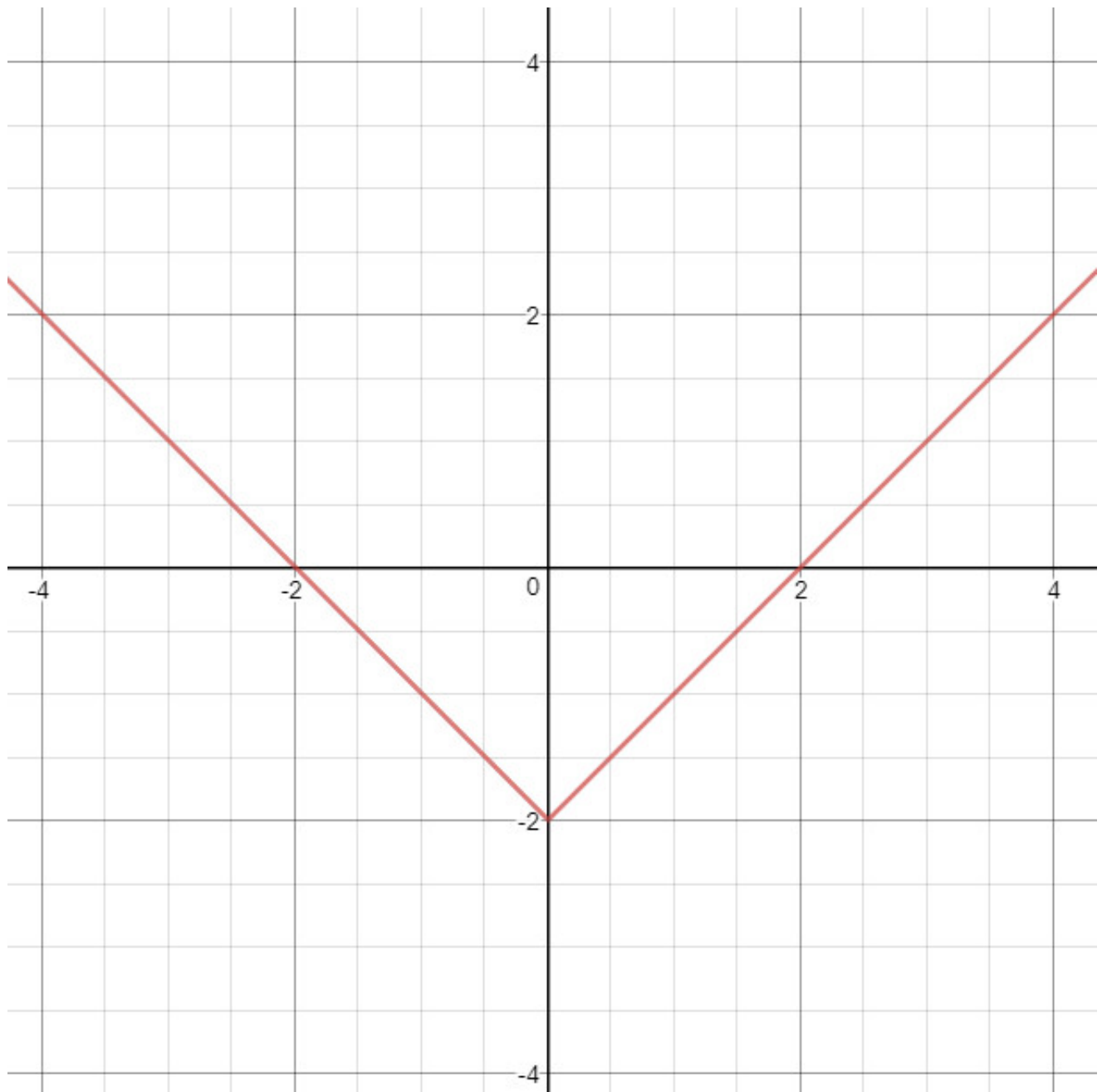
3.



Chapter 1 Review – answers only

Section 1.1 : 1-4, 6

4.



6. *x-intercept*: -2 or $(-2, 0)$
y-intercept: 2 or $(0, 2)$

Chapter 1 Review – answers only

Section 1.2 and 1.3 : 15-42

15. a function domain: $\{2,3,5\}$ range: $\{7\}$
16. a function domain: $\{1,2,13\}$ range: $\{\pi,10,500\}$
17. not a function, because number 12 is matched to 13 and 19 (see pairs (12,13) and (12,19))
domain: $\{12, 14\}$ range: $\{13, 15, 19\}$
18. defines a function ($y = 8-2x$)
19. defines a function ($y = 14 - 3x^2$)
20. does not define a function ($y = \pm\sqrt{6-2x}$)
21. (a) $f(4) = -23$ (b) $f(x+3) = -7x-16$ (c) $f(-x) = 5 + 7x$
22. (a) $g(0) = 2$ (b) $g(-2) = 24$ (c) $g(x-1) = 3x^2-11x+10$ (d) $g(-x) = 3x^2+5x+2$
23. (a) $g(13) = 3$ (b) $g(0) = 4$ (c) $g(-3) = 7$
24. (a) $f(-2) = -1$ (b) $f(1) = 12$ (c) $f(2) = 3$
25. not a function
26. a function
27. a function
28. not a function
29. not a function
30. a function
-
31. (a) domain: $[-3,5)$ (b) range: $[-5,0]$
(c) x-intercept: $(-3,0)$ (d) y-intercept: $(0,-2)$
(e) increasing: $(-2,0), (3,5)$ decreasing: $(-3,-2), (0,3)$
(f) $f(-2) = -3$ $f(3) = -5$
32. (a) domain: $(-\infty,\infty)$ or \mathbf{R} (b) range: $[-\infty,3]$
(c) x-intercepts: $(-2,0), (3,0)$ (d) y-intercept: $(0,3)$
(e) increasing: $(-\infty,0)$ decreasing: $(0,\infty)$
(f) $f(-2) = 0$ $f(6) = -3$
33. (a) domain: $(-\infty,\infty)$ or \mathbf{R} (b) range: $[-2,2]$
(c) x-intercept: $(0,0)$ (d) y-intercept: $(0,0)$
(e) increasing: $(-2,2)$ constant: $(-\infty,-2), (2,\infty)$
(f) $f(-9) = -2,$ $f(14) = 2$
34. relative maximum at 0; $f(0) = -2$
relative minimum at -2 and at 3; $f(-2) = -3$ and $f(3) = -5$
35. relative maximum at 0; $f(0) = 3$
no relative minimum
36. odd function, symmetric with respect to the origin
37. even function, symmetric with respect to the y-axis
38. odd function, symmetric with respect to the origin
39. range: $\{-3,5\}$
40. range: $(-\infty,0]$

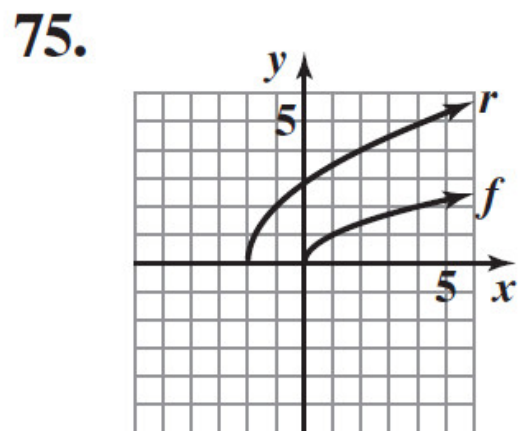
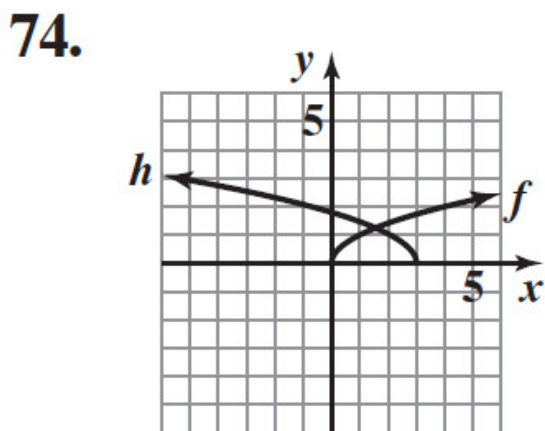
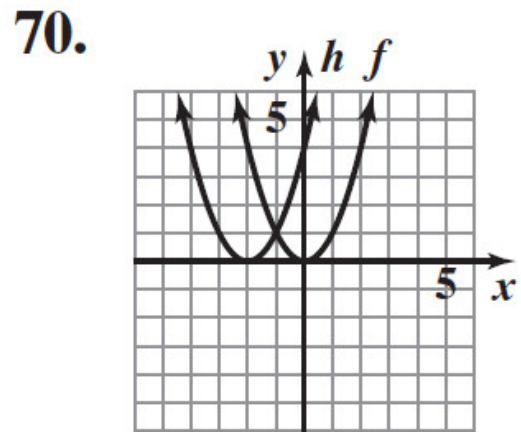
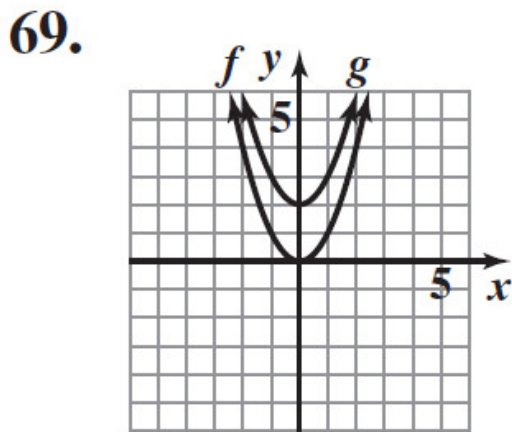
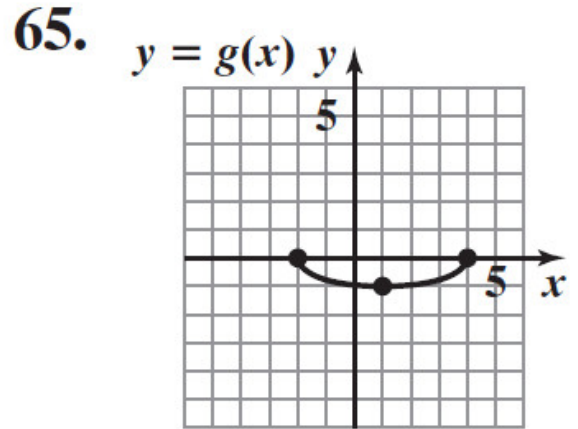
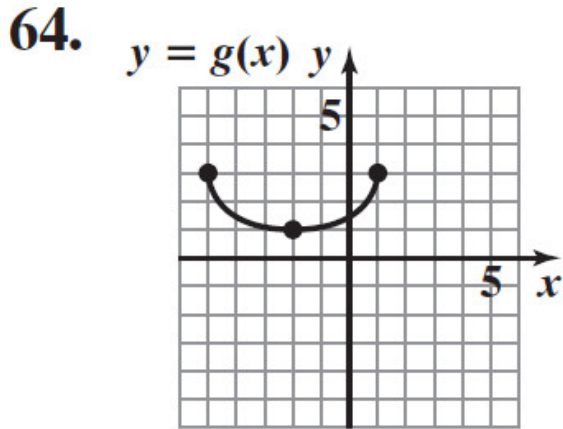
Chapter 1 Review – answers only

Section 1.2 and 1.3 : 15-42

41. $\frac{f(x+h)-f(x)}{h}=8, h \neq 0$

42. $\frac{f(x+h)-f(x)}{h}=-4x-2h+1, h \neq 0$

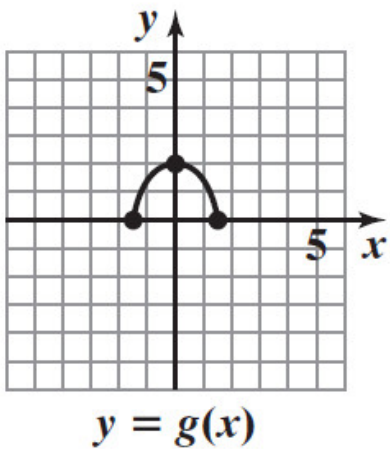
Section 1.6: 64-84



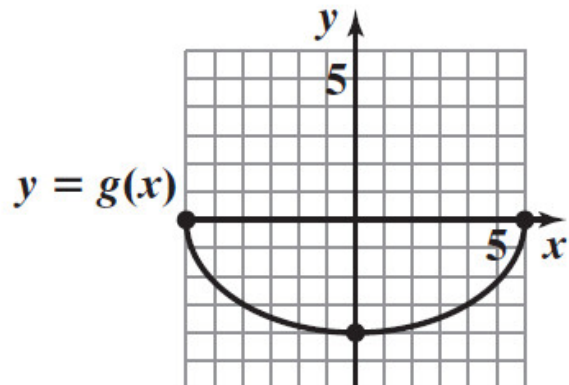
Chapter 1 Review – answers only

Section 1.6: 64-84

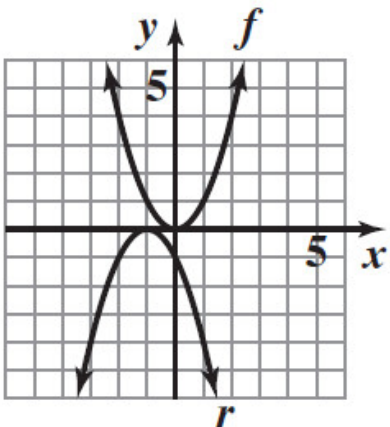
66.



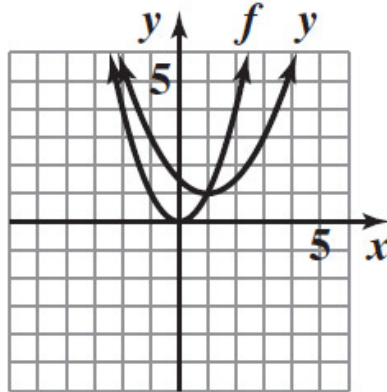
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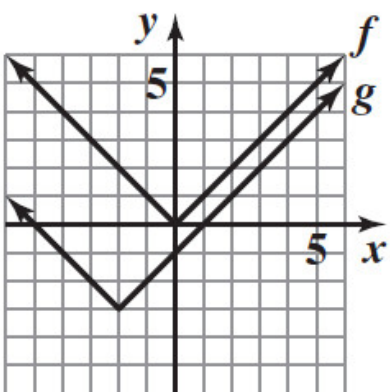
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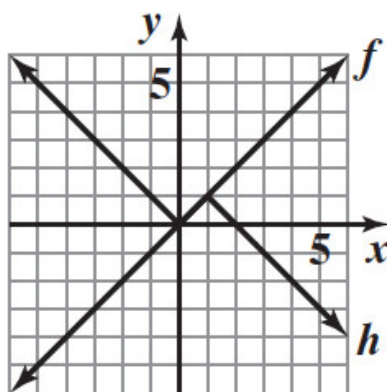
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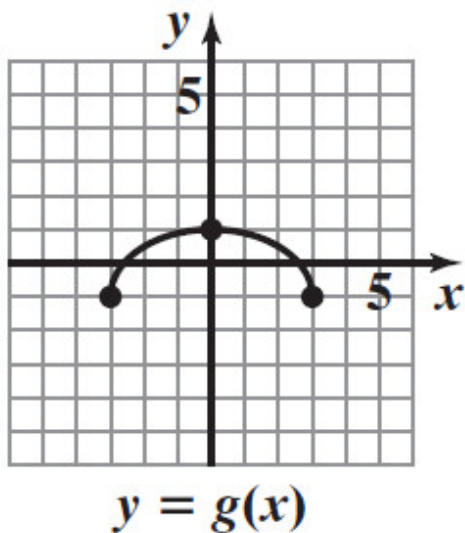
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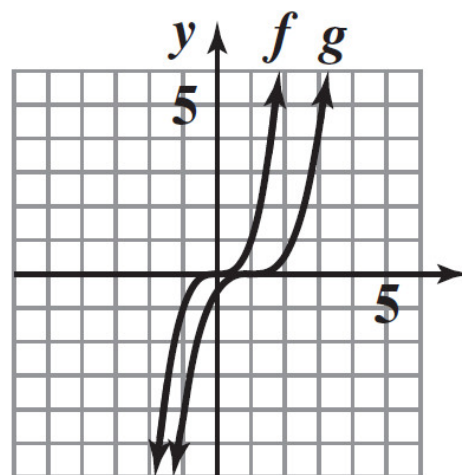
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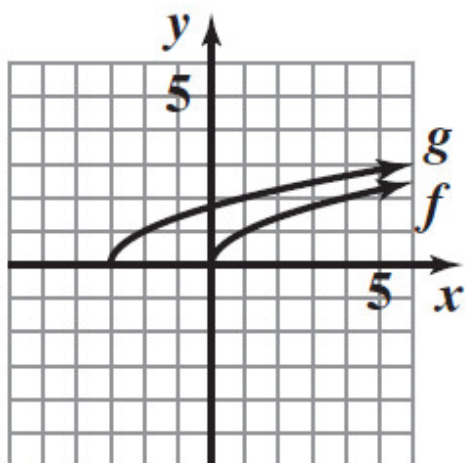
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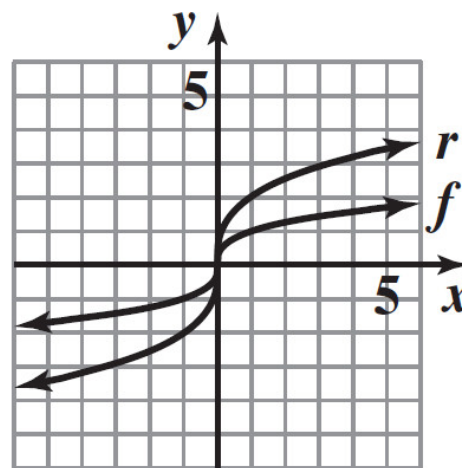
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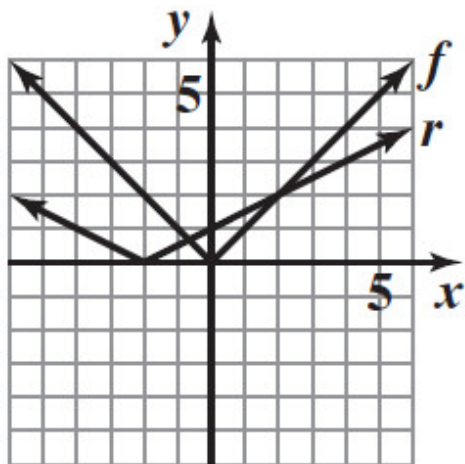
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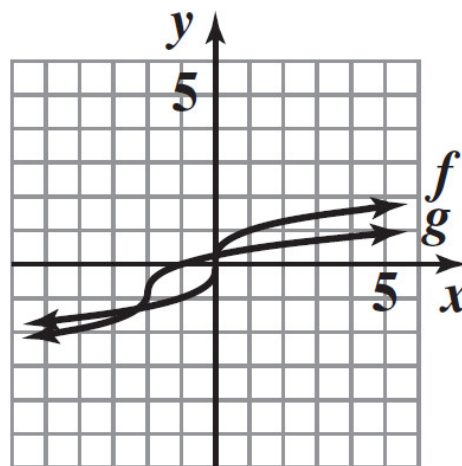
84.



78.



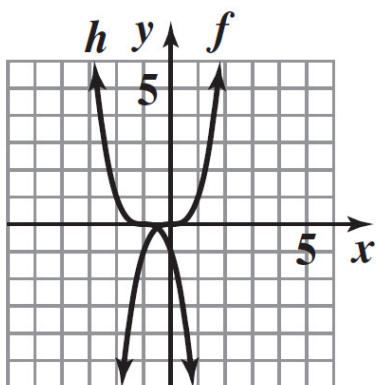
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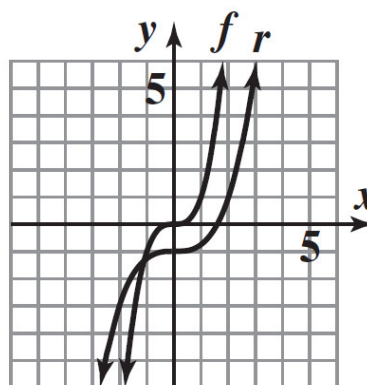
Chapter 1 Review – answers only

Section 1.6: 64-84

80.



81.



Section 1.7: 85-99

85. domain: $(-\infty, \infty)$ or \mathbf{R}

86. domain: $(-\infty, 7) \cup (7, \infty)$

87. domain: $(-\infty, 4]$

88. domain: $(-\infty, -7) \cup (-7, 3) \cup (3, \infty)$

89. domain: $[2, 5) \cup (5, \infty)$

90. domain: $[1, \infty)$

91. $(f+g)(x) = 4x - 6$ domain: $(-\infty, \infty)$ or \mathbf{R}
 $(f-g)(x) = 2x + 4$ domain: $(-\infty, \infty)$ or \mathbf{R}
 $(fg)(x) = 3x^2 - 16x + 5$ domain: $(-\infty, \infty)$ or \mathbf{R}

$\left(\frac{f}{g}\right)(x) = \frac{3x-1}{x-5}$ domain: $(-\infty, 5) \cup (5, \infty)$

92. $(f+g)(x) = 2x^2 + x$ domain: $(-\infty, \infty)$ or \mathbf{R}
 $(f-g)(x) = x + 2$ domain: $(-\infty, \infty)$ or \mathbf{R}
 $(fg)(x) = x^4 + x^3 - x - 1$ domain: $(-\infty, \infty)$ or \mathbf{R}

$\left(\frac{f}{g}\right)(x) = \frac{x^2 + x + 1}{x^2 - 1}$ domain: $(-\infty, -1) \cup (-1, 1) \cup (1, \infty)$

93. $(f+g)(x) = \sqrt{x+7} + \sqrt{x-2}$ domain: $[2, \infty)$

$(f-g)(x) = \sqrt{x+7} - \sqrt{x-2}$ domain: $[2, \infty)$

$(fg)(x) = \sqrt{(x+7)(x-2)}$ domain: $[2, \infty)$

$\left(\frac{f}{g}\right)(x) = \sqrt{\frac{x+7}{x-2}}$ domain: $(2, \infty)$

94. (a) $(f \circ g)(x) = 16x^2 - 8x + 4$

(b) $(g \circ f)(x) = 4x^2 + 11$

95. (a) $(f \circ g)(x) = \sqrt{x+1}$

(b) $(g \circ f)(x) = \sqrt{x+1}$

Chapter 1 Review – answers only

Section 1.7: 85-99

96. $(f \circ g)(x) = \frac{1+x}{1-2x}$ domain: $(-\infty, 0) \cup (0, \frac{1}{2}) \cup (\frac{1}{2}, \infty)$

97. $(f \circ g)(x) = \sqrt{x+2}$ domain: $[-2, \infty)$

98. $h(x) = (x^2+2x-1)^4$
 $f(x) = x^4$ and $g(x) = (x+1)^2$

99. $h(x) = \sqrt[3]{7x+4}$
 $f(x) = \sqrt[3]{x}$ $g(x) = 7x+4$

Section 1.8: 100 – 111

100. not inverses

101. inverses

102. $f^{-1}(x) = \frac{x+3}{4}$ 103. $f^{-1}(x) = \sqrt[3]{\frac{x-1}{8}} = \frac{\sqrt[3]{x-1}}{2}$ 104. $f^{-1}(x) = \frac{2}{x-5}$

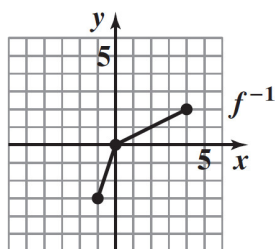
105. inverse function exists

106. inverse function does not exist

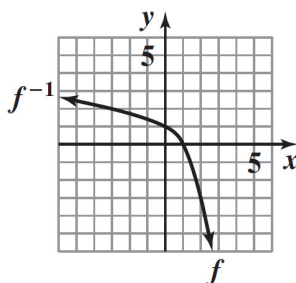
107. inverse function exists

108. inverse function does not exist

109.



110. $f^{-1}(x) = \sqrt{1-x}$



111. $f^{-1}(x) = (x-1)^2, x \geq 1$

