

Final Exam Review - SOLUTIONS

1. $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$
2. $g(x) = -(x + 3)^2$
3. $[-3, 4)$
4. $(-\infty, 1]$
5. $(-4, \infty)$
6. vertical stretch x2, translation left 1
7. translation right 1, and up 5
8. $f^{-1}(x) = \frac{x-3}{2}$
9. $g^{-1}(x) = 4(x+5)$ or $g^{-1}(x) = 4x + 20$
10. 1
11. $-\frac{3}{7}$
12. a. $\begin{cases} c = 1.50d + 34.00 \\ c = 2.50d + 26.00 \end{cases}$
b. 8
13. dependent
14. inconsistent
15. $\begin{cases} a + c = 75 \\ c = 4a \end{cases}$; 15 adults, 60 children
16. $(0, 3)$
17. $(-2, -1)$
18. no solutions
19. $(-2, -3, -2)$
20. $(-3, 2, -5)$
21. $(-4, -5, -1, -4)$
22. Let x = the number of vanilla cakes.
Let y = the number of chocolate cakes.
 $\begin{cases} x \geq 0 \\ y \geq 0 \\ x + y \leq 25 \\ y \leq 10 \end{cases}$
23. maximum value at $(7, 0)$; 28
24. 3×2
25. $z = -5, x = -3, p = 10$ or -10
26. $\begin{bmatrix} 10 & 11 \\ 7 & 0 \end{bmatrix}$
27. $\begin{bmatrix} 8 & -6 & 11 \\ -14 & 5 & 2 \end{bmatrix}$
28. $\begin{bmatrix} -56 & 32 & 0 \\ 24 & 0 & -40 \\ -48 & -16 & -8 \end{bmatrix}$
29. $(2, 1), x = 2;$
 $P'(3, 0), Q'(0, -3)$
30. $y = 4x^2 - 4x - 4$
31. $y = -3x^2 - 2x + 4$
32. \$26; 1,718 drills
33. 1,000 units; \$900
34. 4.23 seconds
35. $\pm 5i\sqrt{6}$
36. $7 + 2i$
37. $6 - 5i\sqrt{6}$
38. $\sqrt{29}$
39. $-7 + 4i$
40. $-4 - 9i$
41. $4 + 7i$
42. 12
43. $44 + 12i$
44. 9
45. $x = -9, x = -10$
46. $x = 9, x = 4$
47. $x = 8, x = -4$
48. $x = -\frac{2}{3}, x = -4$
49. $x = \sqrt{3}, x = -\sqrt{3}$
50. $x = -\frac{9}{5}, x = 9$
51. $x = -2, x = -18$
52. $x = -\frac{5}{7}i, x = \frac{5}{7}i$
53. $y = (x + 3)^2 - 5$
54. $y = -2(x + 2)^2 - 3$
55. $y = x^2$
56. $y = |x|$
57. $7x + y = 17$
58. $y = -\frac{2}{5}x + \frac{16}{5}$
59. $y = 2x - 11$
60. $y = 6$
61. $y = 4$

$$62. \begin{bmatrix} -182 \\ -41 \end{bmatrix}$$

$$63. \begin{bmatrix} -52 & 5 \\ -15 & 2 \end{bmatrix}$$

$$64. \begin{bmatrix} -73 & -38 \\ 11 & -10 \end{bmatrix}$$

$$65. \begin{bmatrix} 38 \\ 51 \end{bmatrix}$$

$$66. 72$$

$$67. 150$$

$$68. 5$$

$$69. y = 3(x + 4)^2 + 2$$

$$70. y = -x^2 - 2$$

$$71. -5x(2x + 5)$$

$$72. (x + 7)(x - 9)$$

$$73. (5x + 9)(x - 4)$$

$$74. J$$

$$75. G$$

$$76. M$$

$$77. B$$

$$78. F$$

$$79. N$$

$$80. K$$

$$81. D$$

$$82. C$$

$$83. A$$

$$84. H$$

$$85. E$$