Math 120R Final Exam Review Solutions

Question	Answer	Question	Answer
1	C	28	B
2	E	29	A
3	A	30	D
4	C	31	A
5	B	32	A
6	C	33	C
7	A	34	D
8	C	35	D
9	B	36	B
10	C	37	D
11	B	38	B
12	D	39	C
13	B	40	B
14	C	41	C
15	B	42	A
16	D	43	B
17	A	44	B
18	B	45	E
19	C	46	C
20	E	47	C
21	E	48	D
22	A	49	D
23	C	50	D
24	E	51	B
25	A	52	A
26	B	53	C
27	C		

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Short Response:

54. a. \$920

b. 15 credits

c. all integers between 0 and 18, inclusive.

d. The vertical intercept is (0,\$100). This represents the base cost of tuition. The slope is \$120/credit. The slope represents the increase in tuition when one more credit is taken.

55. a. 1

b. $(-2,2) \cup (7,11)$

c. $x = 1, 3$

d. $x = -3, -1, 5, 9$

e. 1

56. $-2t - h + 7$

57. a. $T(y) = .15(y - 9550) + 1015$

b. For each dollar increase in income, the income tax increases by 15 cents.

58. $\text{Area} = \frac{x^2}{4\pi} + \frac{(20-x)^2}{16}$

59. $r = \sqrt{(\frac{150}{\pi h})}$

60. 10 planes, 17 hundred thousand dollars or \$1,700,000.

61. $y = 3750$ is the asymptote. The population of the trout will eventually reach 3750.

62. a. $r = 2t$

b. $V = \frac{4}{3}\pi(2t)^3$

63. $F = 1.8(K - 273.15) + 32$. Given a temperature in terms of Kelvin, a temperature in terms of Fahrenheit can be obtained.

64. Distance is ≈ 0.97

65. $\sin t = -\frac{\sqrt{5}}{3}, \quad \csc t = -\frac{3}{\sqrt{5}}, \quad \tan t = -\frac{\sqrt{5}}{2}$

66. a. $y = 3$

b. $x = \frac{2 + \ln 4}{5}$

c. $\theta = \frac{\pi}{6}, \frac{\pi}{3}, \frac{7\pi}{6}, \frac{4\pi}{3}$

d. $t = \frac{\pi}{2}, \ 2\pi - \arcsin(\frac{1}{3}), \ \pi + \arcsin(\frac{1}{3})$

67. $x \approx 8.31$ cm, $\alpha = 27.91^\circ$

68. $y = -4\sin(\frac{\pi}{4}x) + 2, \quad y = 100\sin(5\pi x) + 200$ (Other answers possible)

69. a. $\frac{1}{\sqrt{5}}$

b. $\sqrt{1-x^2}$

70. a. $y = 16e^{-0.72t}\cos(2.8\pi t)$

b. ≈ 0.0119