

Fall Semester Exam Review KEY without work

1. $y = 4, -8$

2. 6.5

3. (1, 2)

4. (4, 11, -8)

5. $63 + 22i$

6. $\frac{17+9i}{10}$

7. $2x^2 - 2x + 5$ R: 13

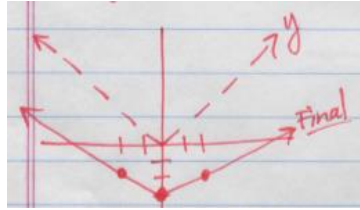
8. $(\frac{61}{13}, \frac{19}{13})$

9. VS of $\frac{1}{2}$, down 3 units

10. $(y - 2)(y + 2)(y - 1)$

11. $(2x + 3)(2x - 5)$

12. $2\sqrt{3}$



13. $x = \pm 4i$, intercepts: no x, y: (0, 32), vertex: (0, 32), min: (0, 32), Domain: $(-\infty, \infty)$, Range: $[32, \infty)$, AofS: $x = 0$

14. $x = -\frac{1}{2}, 3$, intercepts: $(-\frac{1}{2}, 0); (3, 0); (0, -3)$, vertex: (1.25, -6.125), Min: (1.25, -6.125), Domain: $(-\infty, \infty)$, Range: $[-6.125, \infty)$, AofS: $x = 1.25$

15. $x = -1 \pm \sqrt{2}$, intercepts: $(-1 \pm \sqrt{2}, 0); (0, -1)$, vertex: (-1, -2), Min: (-1, -2), Domain: $(-\infty, \infty)$, Range: $[-2, \infty)$, AofS: $x = -1$

16. $x = 3 \pm \sqrt{10}$, intercepts: $(3 \pm \sqrt{10}, 0); (0, -1)$, vertex: (3, -10), Min (3, -10), Domain: $(-\infty, \infty)$, Range: $[-10, 0)$, Aof S: $x = 3$

17. $x = \frac{2 \pm 3\sqrt{2}}{7}$, intercepts: $(\frac{2 \pm 3\sqrt{2}}{7}, 0); (0, -2)$, vertex: (0.286, -2.571), Min: 0.286, -2.571), Domain: $(-\infty, \infty)$, Range: $[-2.571, \infty)$, AofS: $x = 0.286$

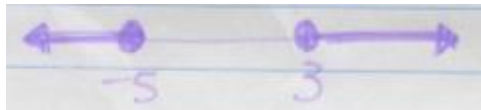
18. -23: 2 imaginary roots

19. $X^2 + x - 20 = y$

20. $X^3 - 6x^2 + 9x + 50 = 0$

21. $12 - 3\sqrt{2} - 16\sqrt{5} + 4\sqrt{10}$

22. $-2\sqrt{2} + 2\sqrt{106}$



23. $(-\infty, -5]$ OR $[3, \infty)$

24. 3, 1

25. 2, 0

26. $3x^2 + 6x + 2$

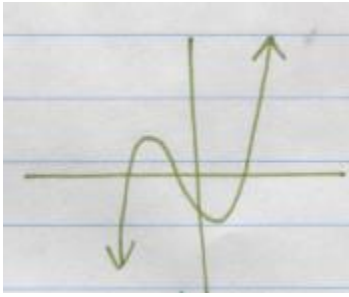
27. $P(-2) = -3$

28. 3

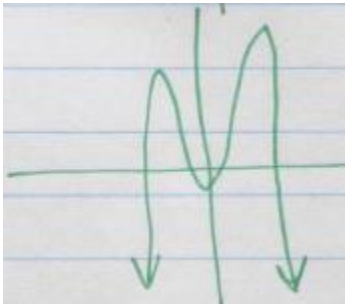
29. $(x - 2)(x + 1)(x + 3)$

30. $\pm 1, \pm 2, \pm \frac{1}{2}, \pm 4, \pm 8$

31. $x = \pm i\sqrt{3}, \pm\sqrt{15}$



32.



33.

34. $x = 1 \pm i\sqrt{6}, 1$ with no multiplicities

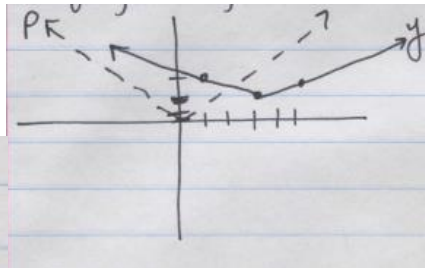


35. $(-\infty, -16] \text{ OR } [8, \infty)$

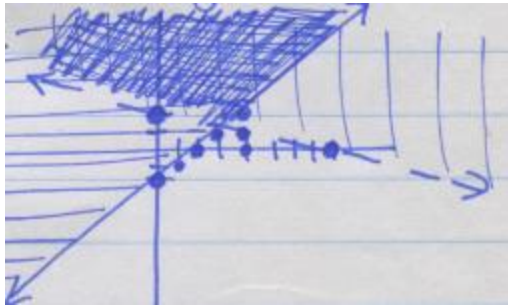
36. $xy = 42$

37. $2x^3 + x^2 - 6x$ OR $x(2x^2 + x - 6)$

38. VC of $\frac{1}{2}$; right three units, up two units.



39.



40. $x = -\frac{1}{4} \pm \frac{\sqrt{5}}{4}$ or $\frac{-1 \pm \sqrt{5}}{4}$

41. -8

42. $20 - 30i$

43. $36x^2 - 24x + 4$

44. $3x^2 + 4x - 2$ R. -6

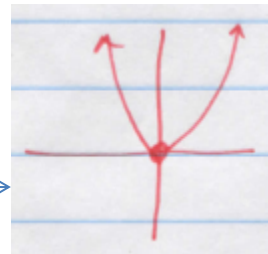
45. $(3x + 1)(x + 5)$

46. $(x - 3)(x^2 + 3x + 9) (2x + 5)(4x^2 - 10x + 25)$

47. D: $(-\infty, \infty)$ R: $[0, \infty)$

48. $(3a + 2b)(4a - b)$

49. $y = 10.156x + 59.683$. Roughly an 85 grade.



50. (2, -3, -5)

51. 190 for about 6 secs. @ 254 feet

52. $16a^4 - 32a^3b + 24a^2b^2 - 8ab^3 + b^4$

53. $4[(2a^2 - b)(4a^4 + 2a^2b + b^2)]$

54. $\begin{bmatrix} -15 & 1 \\ 13 & 4 \end{bmatrix}$

55. $\begin{bmatrix} 25 & 7 & 35 \\ -27 & -8 & -29 \end{bmatrix}$

56. $\begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix}$

57. $\begin{bmatrix} \frac{5}{2} & -1 & 3 \\ -2 & 0 & -2 \end{bmatrix}$

58. $x = \pm 3, y = -4, z = -3$

59. 64

60. $x = 10$

61. $\begin{bmatrix} -6 & -9 \\ -1 & 0 \\ 17 & -10 \end{bmatrix}$

62. $\begin{bmatrix} 3 & 3 \\ -\frac{1}{2} & 0 \\ -\frac{13}{2} & \frac{11}{2} \end{bmatrix}$

63. $x = 35, y = -29$

64. $x = -3, y = 2$

65. $\begin{bmatrix} -2 & 3 \\ 5 & -7 \end{bmatrix}$

66. $\begin{bmatrix} 11 & -3 \\ -7 & 2 \end{bmatrix}$

67. $\begin{bmatrix} \frac{1}{2} & -\frac{3}{4} \\ 1 & -2 \end{bmatrix}$

68. *yes*

69. $\begin{bmatrix} -1 & 1 \\ 23 & 22 \end{bmatrix}$

70. $\begin{bmatrix} -6 & -6 & 30 \\ 4 & -37 & 3 \end{bmatrix}$

71. [23]

72. $\begin{bmatrix} 10 & 4 & 6 \\ 2 & 9 & 9 \end{bmatrix}$

73. $\begin{bmatrix} -1 & -6 & 7 \\ -1 & -14 & -6 \\ 1 & 4 & 2 \end{bmatrix}$

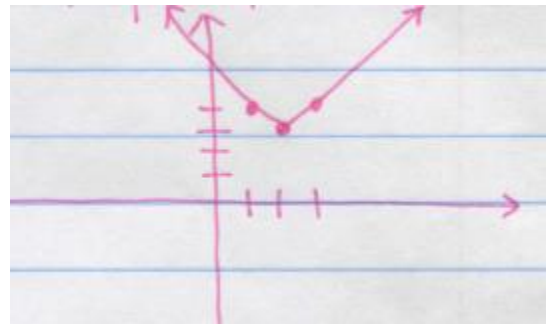
74. $\begin{bmatrix} 8 & 11 \\ 9 & 13 \\ 8 & 6 \end{bmatrix}$

75. $\begin{bmatrix} 12 & 18 & -3 \\ 30 & -15 & 6 \\ 6 & 33 & 3 \end{bmatrix}$

76. $\begin{bmatrix} -2 & 12 \\ 2 & 0 \end{bmatrix}$

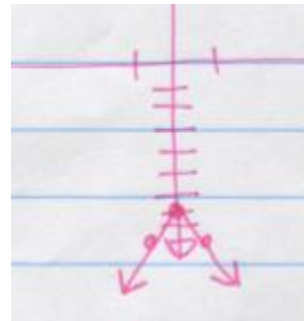
77.

- a. $\begin{bmatrix} -1 & -5 & -2 \\ 4 & 3 & 1 \end{bmatrix}$
- b. $\begin{bmatrix} 1 & 5 & 2 \\ -4 & -3 & -1 \end{bmatrix}$
- c. $\begin{bmatrix} 4 & 3 & 1 \\ -1 & -5 & -2 \end{bmatrix}$
- d. $\begin{bmatrix} -4 & -3 & -1 \\ 1 & 5 & 2 \end{bmatrix}$
- e. $\begin{bmatrix} -4 & -3 & -1 \\ -1 & -5 & -2 \end{bmatrix}$
- f. $\begin{bmatrix} 12 & 9 & 3 \\ 3 & 15 & 6 \end{bmatrix}$
- g. $\begin{bmatrix} 2 & 1 & -1 \\ 6 & 10 & 7 \end{bmatrix}$
- h. $\begin{bmatrix} 2 & \frac{3}{2} & \frac{1}{2} \\ -\frac{1}{2} & -\frac{5}{2} & -1 \end{bmatrix}$



78. D: $(-\infty, \infty)$ R: $[3, \infty)$, Right 2u, up 3u, $f(x) = |x - 2| + 3$

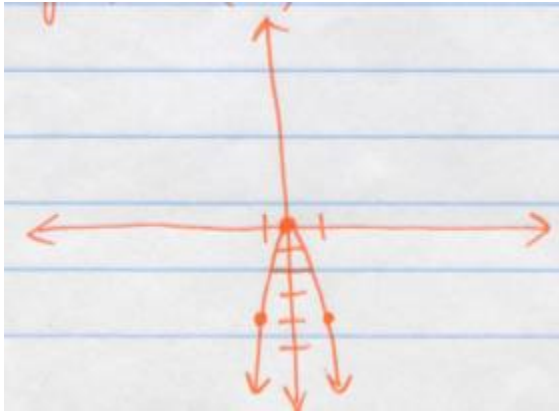
79. D: $(-\infty, \infty)$ R: $(-\infty, -7]$, R_x , VS by 2, down 7 u, $g(x) = -2|x| - 7$



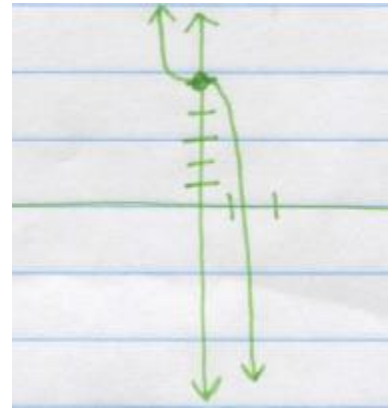
80. D: $(-\infty, \infty)$ R: $[-1, \infty)$, VS by 3, left 2 u, down 1u, $g(x) = 3(x + 2)^2 - 1$



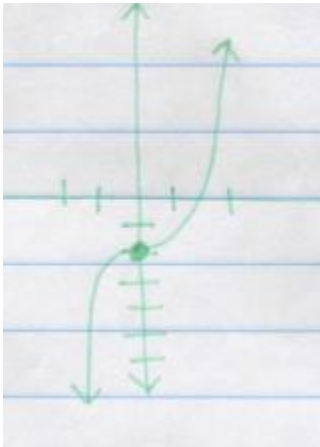
81. D: $(-\infty, \infty)$ R: $(-\infty, 0]$, R_x , HC of $\frac{1}{2}$, $g(x) = -(2x)^2$



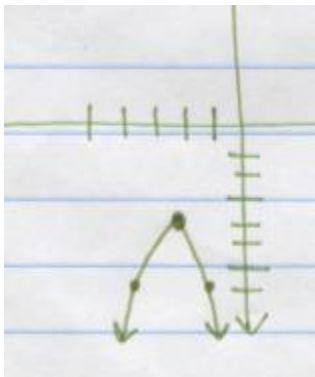
82. D: $(-\infty, \infty)$ R: $(-\infty, \infty)$, R_x , VS by 2, up 5 units, $g(x) = -2x^3 + 5$



83. D: $(-\infty, \infty)$ R: $(-\infty, \infty)$, VC by $\frac{1}{3}$, down 2 u, $h(x) = \frac{1}{3}x^3 - 2$



84. D: $(-\infty, \infty)$ R: $(-\infty, -4]$, R_x , VS by $\frac{5}{2}$, left 2 u down 4 u, $h(x) = -\frac{5}{2}(x+2)^2 - 4$



85. D: $(-\infty, \infty)$ R: $(-\infty, \infty)$, HS by $\frac{4}{3}$, right 4 u, $g(x) = \left(\frac{3}{4}x - 4\right)^3$

