Math 055 Study Guide

Name:

This study guide represents the type of questions that are on the final but is not meant to be all-inclusive. Students will need to review **ALL** the content presented in the course.

Chapter 9

Solve.

1. $-2=-8+2x$ 1. _____

2. $5-2x=x+4$ 2. _____

3. $3+4(x-2)=x+1$ 3. _____

Translate the sentence into an equation, using the variable x. Then solve the resulting equation.

4. Three times a number plus 2 equals the number minus 4. 4. _____

5. The sum of three consecutive natural numbers is 75. Find the three numbers. 5. _____

Solve the inequality.

6. $-2-x\geq 8+3x$ 6. _____

7. $3+4(x-2)<x+1$ 7. _____

8. Solve the formula $c=ab-3b$ for a. 8. _____

Chapter 15

Graph the solution set to the compound inequality on a number line.

9. $2x+3<7$ and $2x\geq x-1$

10. $-2x+3\leq 5$ or $3x<x+1$

Solve the compound inequality and write the solution set in interval notation.

11. $-3 < 2 + \frac{1}{2}x \le 1$ 11. _____

12. $-2 - \frac{1}{3}x \ge -2$ or $-2 - \frac{1}{3}x < -3$ 12. _____

13. Solve the equation $|1 - 2x| = 2$. 13. _____

Solve each inequality. Write your answer in interval notation.

14. $|2 + 3x| < -5$ 14. _____

15. $|2 + 5x| + 1 \ge 4$ 15. _____

16. $|1 - 2x| < 2$ 16. _____

Chapter 11

17. Determine which ordered pair is a solution to the system of equations. 17. _____

$(3, -4),\ (1, -1)$

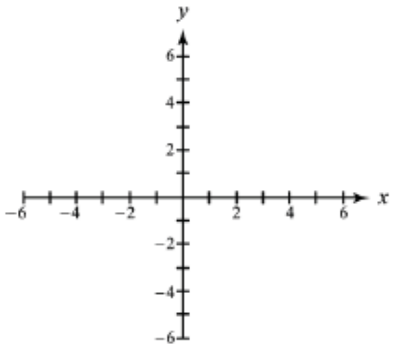
$3x + 2y = 1$

$2x - 3y = 5$

18. Solve the system of equations graphically.

$2x + y = 15$

$x - y = 0$



19. Use the method of substitution to solve the system of linear equations.

$3x + y = 4$

$-4x - y = -3$

19. _____

20. Use the elimination method to solve the system of equations.

$2x + 5y = 4$

$x - 2y = -1$

20. _____

21. Use the elimination method to solve the system of equations.

$x + 4y = 2$

$2x + 3y = 9$

21. _____

22. ~~Determine whether the test point $(2, -2)$ is a solution to the system of linear inequalities.~~

$x + 2y < 2$

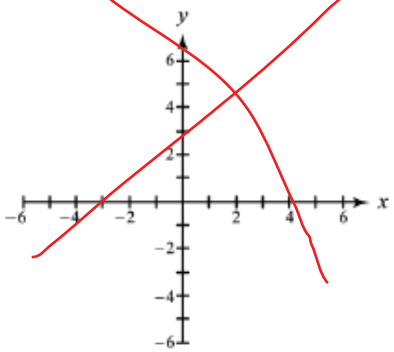
$2x + y \geq -4$

22. _____ Not Covered

23. Shade the solution set for the system of inequalities.

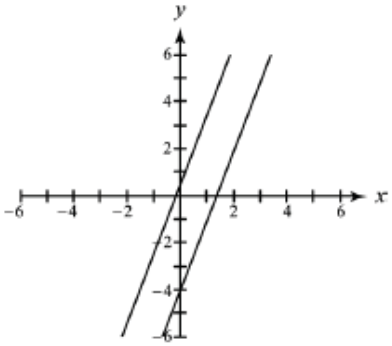
$2x - y > 0$

$x - 2y \leq 2$



Not Covered

24. The graphs of two equations are shown.
(a) State the number of solutions to the system of equations.
(b) Is the system consistent or inconsistent? If the system is consistent, state whether the equations are dependent or independent.



24. (a)_____

(b)_____

Chapter 12

Divide.

25. $\dfrac{12a^3 - 6a^2}{6a^2}$

25._____

26. $\dfrac{3x^3 + 8x^2 + 1}{x + 2}$

26. _____

Chapter 13

Factor completely.

27. $2x^3 - 5x^2 - 3x$

27._____

28. $3x^4 - 3x^2 - 36$

28. _____

29. $27x^4 - 64x$

29. _____

30. $8x^4 + 125x$

30. _____

31. $3b^4 + 48$

31. _____

Solve by factoring completely.

32. $x^2 - 9 = 0$ 32. _____

33. $2x^2 = 5x - 3$ 33. _____

34. $4x^2 + 49 = -28x$ 34. _____

35. $x(x+2) = 15$ 35. _____

36. $6x^5 = 6x^3$ 36. _____

37. $x^4 - 10x^2 + 9 = 0$ 37. _____

Chapter 14

38. Evaluate the expression $\frac{2x}{x-4}$ for $x = -1$. 38. _____

39. Find any x-value that makes $\frac{x+2}{x-3}$ undefined. 39. _____

Simplify the expression.

40. $\frac{x^2 - 16}{x+4}$ 40. _____

41. $\frac{12a^2 - 6a}{6a}$ 41. _____

42. $\frac{x+3}{x^2-9} \cdot \frac{x-3}{x+3}$ 42. _____

43. $\frac{x+1}{2x^2} \div \frac{2x+2}{6x^2}$ 43. _____

44. $\frac{2a}{3a+2} - \frac{a+4}{3a+2}$ 44. _____

45. $\frac{2}{x-3} - \frac{5}{(x-3)^2}$ 45. _____

46. $\frac{9}{4x} - \frac{3}{2x}$ 46. _____

47. $\frac{1}{x} + \frac{4}{x-1}$ 47. _____

Simplify the complex fraction.

48. $\dfrac{\frac{3x}{4y}}{\frac{x}{2y^2}}$ 48. _____

49. $\dfrac{\frac{1}{x} - \frac{1}{x-2}}{\frac{2}{x} + \frac{5}{x-2}}$ 49. _____

Solve the equation and check your answer.

50. $\frac{9}{6} = \frac{12}{y}$ 50. _____

51. $\frac{18}{3x-4} = 3$ 51. _____

52. $\frac{7}{3x} + \frac{2}{2x} = \frac{5}{6}$ 52. _____

53. $\frac{6}{a} + \frac{6}{a+1} = 5$ 53. _____

54. $\frac{5}{x-2} - \frac{2}{x+2} = \frac{3}{x^2-4}$ 54. _____

55. Solve $y = \dfrac{3}{2x-3}$ for x. 55. _____

56. ~~Suppose y is directly proportional to x.~~
~~(a) If $y = 9$ when $x = 14$, find k so that $y = kx$.~~
~~(b) Then use $y = kx$ to find y when $x = 10$.~~

56. (a) Not Covered

(b) _____

Chapter 17

Write the expression in radical notation.

57. $7^{\frac{2}{3}}$ 57. _____

Simplify the expression. Assume that all variables are positive.

58. $\sqrt[3]{125y^3}$ 58. _____

59. $\left(\sqrt{3}-\sqrt{5}\right)\left(\sqrt{3}+\sqrt{5}\right)$ 59. _____

60. $\left(3x^2y^{\frac{1}{3}}\right)^3$ 60. _____

61. $\left(\dfrac{x^2}{y^3}\right)^{-\frac{1}{2}}$ 61. _____

62. $\sqrt{x^3} \cdot \sqrt{x^5}$ 62. _____

63. $\dfrac{\sqrt{8}}{\sqrt{2}}$ 63. _____

64. $5\sqrt{2} + 3\sqrt{3} - 4\sqrt{2}$ 64. _____

65. $5\sqrt[3]{16} - 3\sqrt[3]{2}$ 65. _____

66. Solve $\sqrt{20-2x} = x+2$. 66. _____

67. Rationalize the denominator of $\dfrac{1}{\sqrt{7}-\sqrt{5}}$. 67. _____

Write the complex expression in standard form.

68. $(3-5i)-(8-2i)$ 68. _____

69. $\dfrac{3+5i}{3+i}$ 69. _____

70. $(-2.3-4.1i)-(6.2-8.7i)$ 70. _____

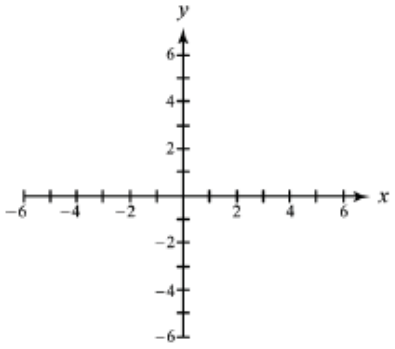
71. $\dfrac{-1.7+5.2i}{0.6-1.1i}$ 71. _____

Chapter 18

72. Find the vertex and axis of symmetry for the graph of $f(x)=-\frac{1}{2}x^2+2x-5$. 72. _____

Evaluate $f(-2)$. _____

73. Graph $f(x)=-x^2-4$.



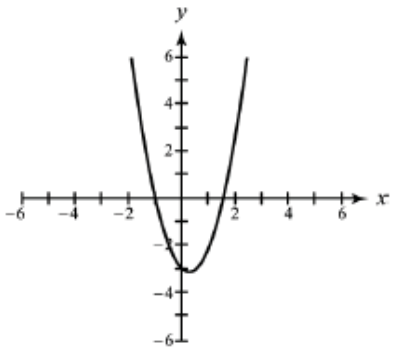
74. Solve the quadratic equation $3x^2-5x-12=0$. 74. _____

75. Solve the quadratic equation $2x^2=12-x^2$. 75. _____

76. Solve $x^2+3x=2$ by completing the square. 76. _____

77. Solve $x(-3x+4)=2$ by using the quadratic formula. 77. _____

78. A graph of $y = ax^2 + bx + c$ is shown.

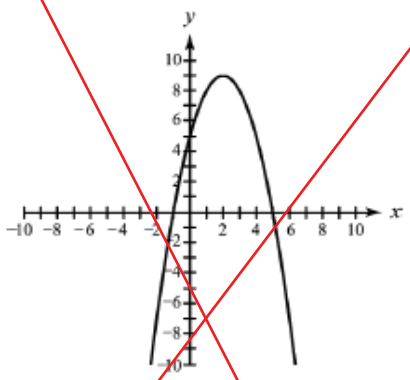


(a) State whether $a > 0$ or $a < 0$. (a)_____

(b) Solve $ax^2 + bx + c = 0$. (b)_____

(c) Determine whether the discriminant is positive, negative, or zero. (c)_____

79. The graph of $y = ax^2 + bx + c$ is shown.
Solve each equation or inequality. *Write the answer in interval notation.*



(a) $ax^2 + bx + c = 0$ 79. (a)___ Not Covered ___

(b) $ax^2 + bx + c < 0$ (b)_____

(c) $ax^2 + bx + c \geq 0$ (c)_____

80. Solve $2x^2 - 9x < 0$. Write your answer in interval notation. 80. _ Not Covered _____

81. Solve $x^4 + x^2 - 20 = 0$. 81. _____

82. Solve $2x^2 + x + 4 = 0$. 82. _____