Lower Dauphin Senior High School

Summer Course Work

In preparation for

Honors Geometry

- This packet is intended for anyone taking Honors Geometry starting in August 2023.
- It is important that the student understands the material in this packet.
- If a student lacks understanding, it is the student's responsibility to find similar material/instruction on the internet (or elsewhere) to seek understanding.
- An exam on this material will be given on the first week of school.
- The answers to the review packet will be displayed on my website at ldsd.org by July 1, 2023.

Mr. Pirtle

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Student Name_____

Lower Dauphin Senior High School

Summer Course Work

Geometry Honors

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All pages must show the work in order to be accepted.

If more paper is needed, the work may go on the back of each page

or neatly on a separate piece of paper.

Vocabulary

Word Bank:

coefficient	*constant*	*denominator*	*difference*
percentage	*like terms*	*numerator*	*product*
slope-intercept form	*mean*	*linear-standard form*	*quotient*
range	*sum*	*x-intercept*	*y-intercept*
mode	*median*	*probability*	*slope*

1. _____ the bottom number in a fraction

2. _____ an amount obtained by addition

3. _____ $y = mx + b$

4. _____ $Ax + By = C$

5. _____ mathematical average of all the terms in a data set

6. _____ an amount obtained by multiplication

7. _____ the point where a line crosses the *y-axis*

8. _____ a value or quantity at the midpoint of a data set

9. _____ an amount obtained by division

10. _____ the point where a line crosses the x-axis

11. _____ the top number in a fraction

12. _____ an amount obtained by subtraction

13. _____ the number being multiplied by a variable (the number in front of the variable

14. _____ a term that has no variable factor (it is just a number)

15. _____ terms with exactly the same variable

16. _____ the ratio of a line's vertical change to its horizontal change

17. _____ the most frequently occurring value in a data set

18. _____ a rate, number, or amount in each hundred

19. _____ the likelihood of a given event's occurrence

20. _____ the difference between the lowest and highest values

Formulas

Match the following formulas to their correct descriptions.

21. _____ Slope-Intercept Form

22. _____ Standard Form of a Line

23. _____ Slope

24. _____ Distance Formula

25. _____ Midpoint Formula

26. _____ Quadratic Formula

27. _____ Pythagorean Theorem

A. $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

B. $Ax + By = C$

C. $a^2 + b^2 = c^2$

D. $y = mx + b$

E. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

F. $M = \left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2} \right)$

G. $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Fractions

Perform the indicated operation and simplify, if necessary.

28. $\dfrac{5}{4} + \dfrac{3}{4} =$

29. $\dfrac{7}{8} - \dfrac{1}{2} =$

30. $\dfrac{6}{7} + \dfrac{3}{2} =$

31. $\dfrac{1}{9} \div \dfrac{7}{8} =$

32. $\dfrac{15}{3} - \dfrac{12}{5} =$

33. $-\dfrac{3}{5} - \dfrac{2}{7} =$

34. $\dfrac{2}{3} \cdot \dfrac{5}{8} =$

35. $-\dfrac{5}{3} \cdot \dfrac{2}{5} =$

36. $\dfrac{1}{3} \div \dfrac{5}{2} =$

Expressions

Evaluate each of the following expressions. Let $x = 4$, $y = -2$, and $z = 7$

37. $2x + 3y^2$

38. $-5(x + y)$

39. $\dfrac{-y}{x}$

40. $x^3 - y^2$

41. $3xz + z^2 y$

8

Evaluate each expression:

42. $3 + 7 \cdot 5 - 2$

43. $24 - 2^2 \cdot 7 - 5$

44. $2(5 + 3) - 5 \cdot 4$

45. $-3(12 - 7) + 3^3$

46. $(3 - 5)^3 \div 2(4 \cdot 3)$

47. $49 - (5 + 2)^2 + 14$

48. $\dfrac{1}{3}(2 + 4)^2$

49. $(7 - 9^2) \div (5 + 4)^2$

Exponents and Radicals

Simplify the following expressions completely.

50. $\dfrac{15a^4b^2c^3}{5ac^5}$

51. $(x^4)^2$

52. $(2x^3)^2$

Simplify. Leave answers in radical form (no decimals).

53. $\sqrt{18}$

54. $5\sqrt{80}$

55. $3\sqrt{2} \cdot 5\sqrt{10}$

56. $\dfrac{1}{\sqrt{2}}$

57. $\dfrac{\sqrt{12}}{\sqrt{5}}$

58. $\dfrac{2\sqrt{2}}{\sqrt{3}}$

Solving Equations

Solve the following equations.

59. $\dfrac{r+8}{-3} = -2$

60. $3(x+2) = 18$

61. $-2 + 10x = 8x - 1$

62. $2(a-3) + 5 = 3(a-1)$

63. $3 + \dfrac{2}{5}y = 11 - \dfrac{2}{5}y$

64. $2[x + 3(x-1)] = 18$

65. $1.03t - 4 = 2.15t + 8.72$

66. $-3(x+5) = 8x + 18$

Proportions

Solve each proportion for the indicated variable.

67. $\dfrac{2}{3} = \dfrac{x}{12}$

68. $\dfrac{5}{y} = \dfrac{10}{14}$

69. $\dfrac{15}{5+3n} = \dfrac{9}{n}$

70. $\dfrac{x+2}{2} = \dfrac{4x+13}{3}$

Solve for each problem below by using proportions.

71. Sue was paid $384 for working 32 hours. How many hours will she have to work to earn $672?

72. Tommy drove 238 miles in 5 hours. How long will it take him to travel the next 72 miles, if he continues at the same speed? (Give your answer in minutes.)

73. Matt paid $33.41 for 13 gallons of gasoline. How many gallons can he buy if he only has $14?

Factoring Quadratic Equations

Factor the following expressions.

74. $x^2 + 9x + 20$

75. $x^2 - 3x - 28$

76. $x^2 + 4x - 32$

77. $x^2 - 64$

78. $4x^2 - 25$

79. $3x^2 - 3x - 6$

Pythagorean Theorem

Find the missing side length. If needed, round to the nearest tenth.

80.

9
x
5

81.

8
x
15

82.

6.25
x
2.3

83.

$3\sqrt{10}$
x
$3x$

84.

$x+2$
$x-2$
x
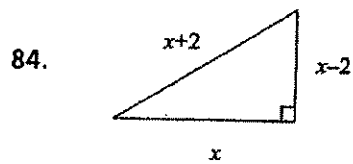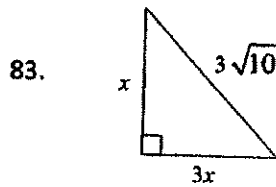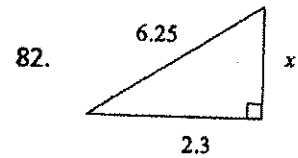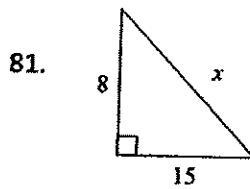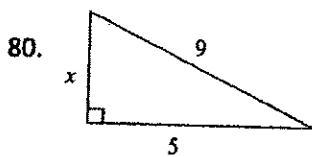
Systems of Equations

Find the value of x, and y that satisfy each system of equations below.

85.
$$2x + 3y = 5$$
$$x - 5y = 9$$

86.
$$-3x + y = 2$$
$$8x - 15y = 7$$

Number Line Inequalities

Graph each inequality on a number line.

87. $18 + 4x \leq 50$

88. $7 - 2t \leq 21$
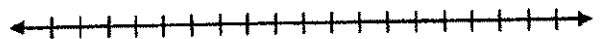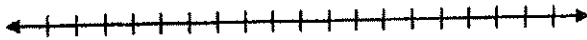
89. $2x - 6 \geq -6x + 2$

90. $-3x > 12$ or $4x \geq -10$
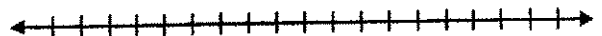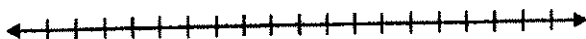
Graphing Functions

91. $y = -2$
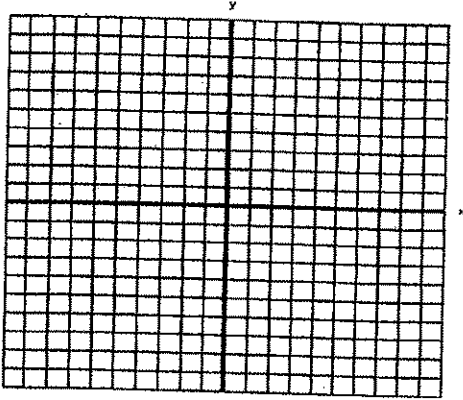
92. $-2y < 4x + 6$
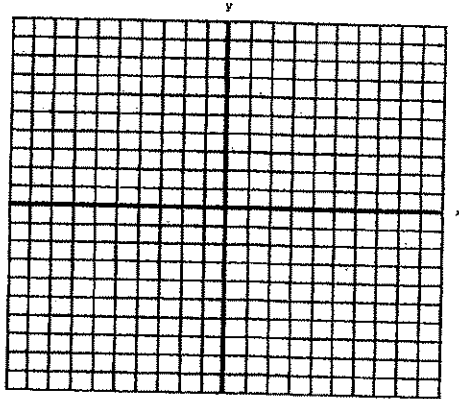
93. $y = -\dfrac{1}{2}x + 4$
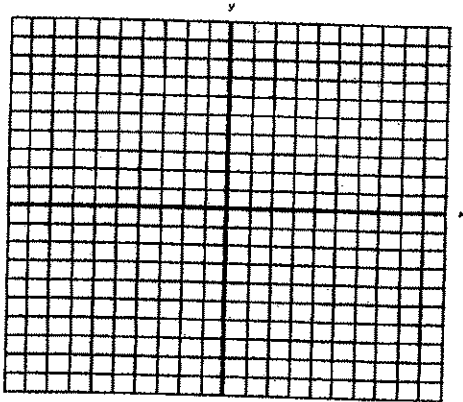
94. $x < -1$
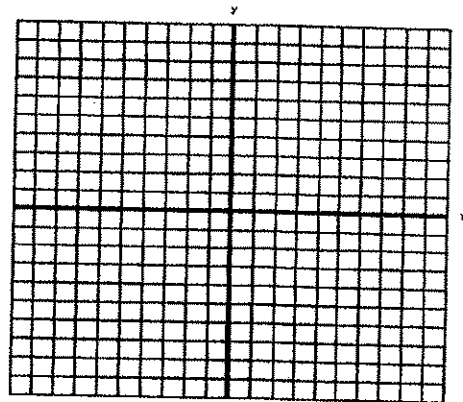
95. $y = x^2$
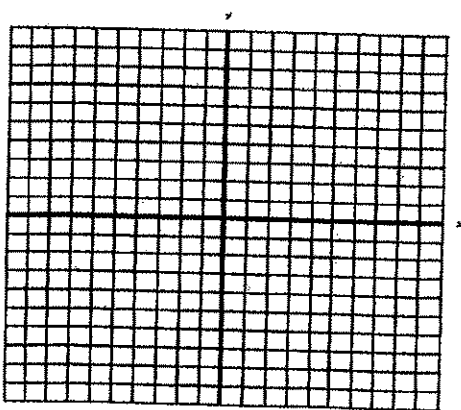
96. $y = |x|$
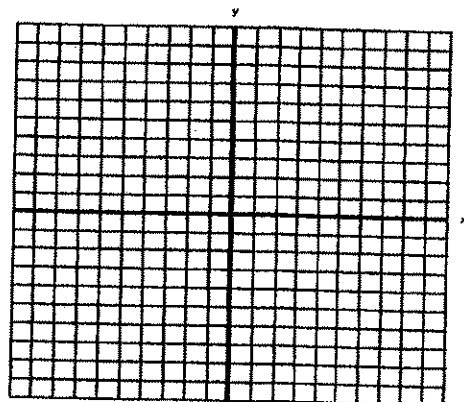
97. $2x + y = 5$
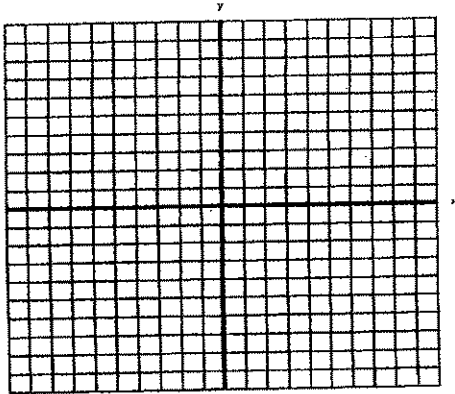
98. $6x - 5y = 30$
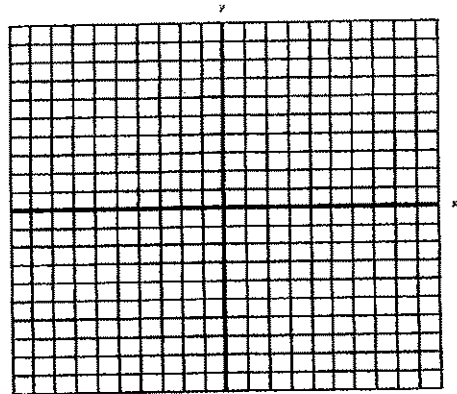
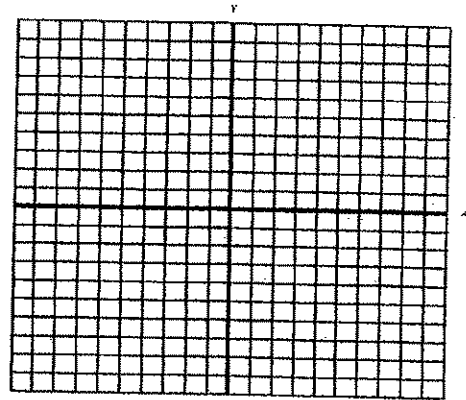99. Write the equation of a line that passes through (–3, 2) and is parallel to $x - y = 7$. Then graph.
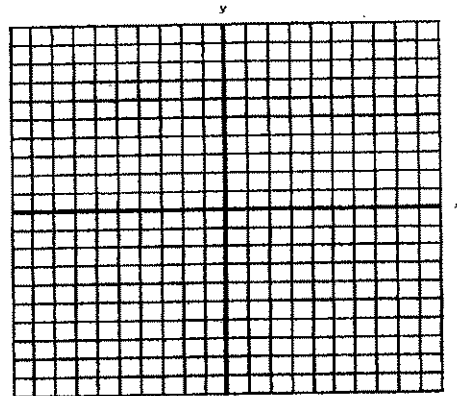
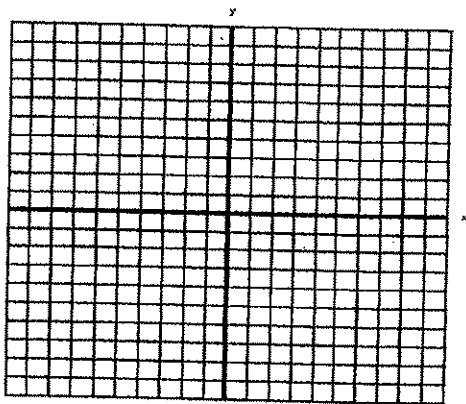100. Write the equation of the line that passes through (–5, 9) and (–4, 7) in slope-intercept form. Then graph.
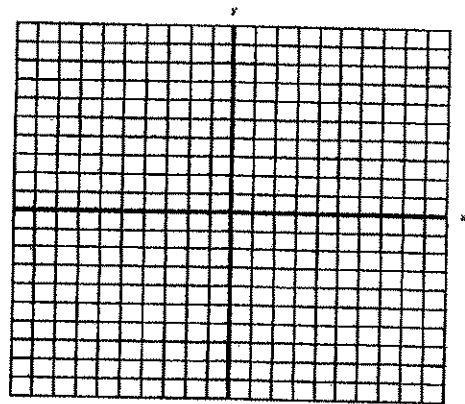
15
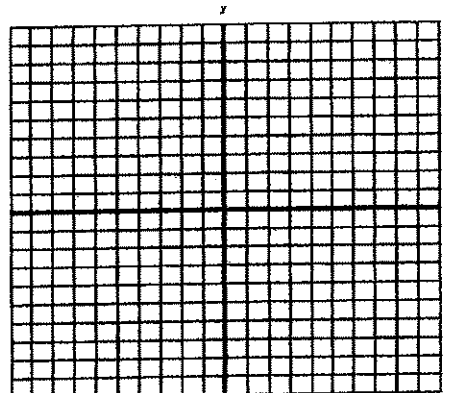
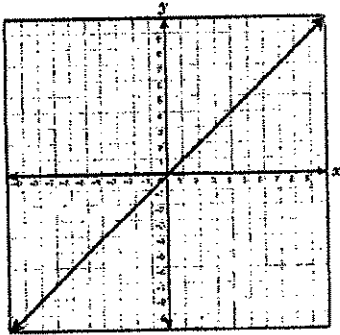## 101. Sketch a line with the appropriate slope.
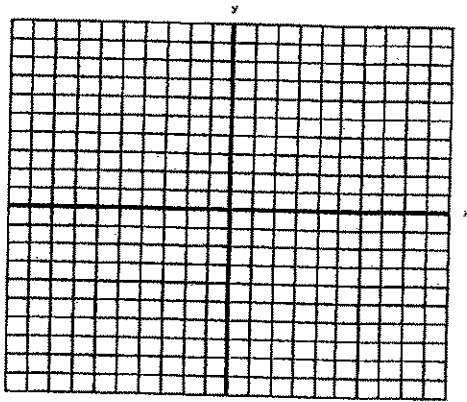
Positive
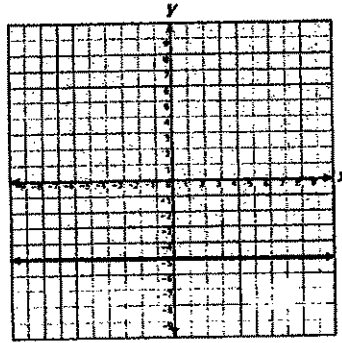
Negative

Zero

Undefined

Various Graphs

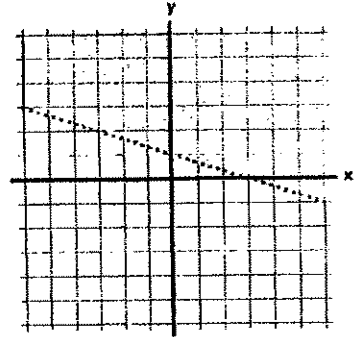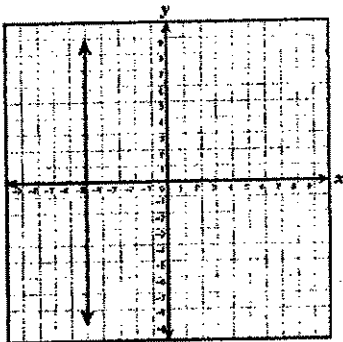Write the equations or inequalities for the following graphs.
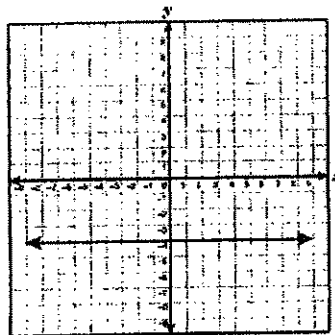
102. _____

103. _____

104. _____

105. _____

106. _____

107. _____

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