

Algebra 2 Level 9

Summer Packet

- This packet is designed to help you retain the information you learned in Algebra 1 and realize what skills are essential for you as you enter Algebra 2.
- This packet will be due Friday September 5th, 2014.
- **Please show all your work on the packet. If no work is shown, no credit will be given! Please place all answers on the answer sheet.**
- Here are some online resources you can use to help you if you are having trouble. There are also many others you can find using a google search.

1. **Khan Academy**
2. **Purple Math**
3. **Google Math Tools**

In preparation for this class, we recommend you arrive on the first day of class with the following supplies:

- 1 ½" or 2" 3 ring binder
- Loose leaf paper or notebook
- Dividers for your binder
- Handheld pencil sharpener
- Scientific calculator
- A graphing calculator (TI-84plus) is recommended for students who plan on taking AP Calculus and/or AP Statistics during high school.
- Pencils

Name: _____

Algebra 2 Level 9 Summer Packet Answer Sheet

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20 b.)

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20 c.)

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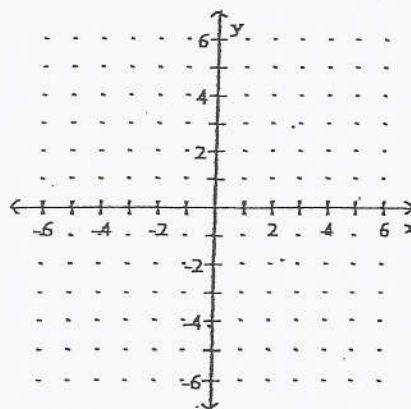
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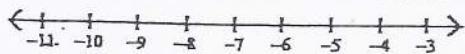
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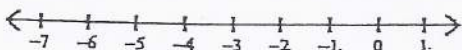


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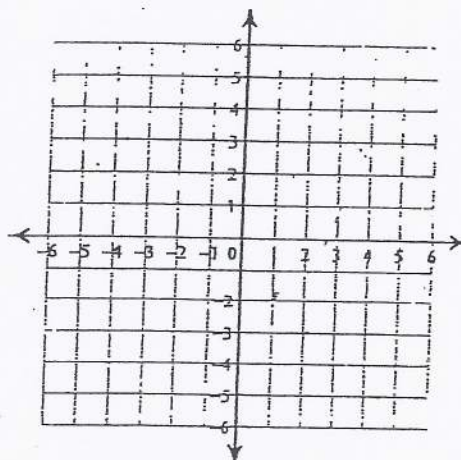
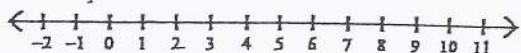


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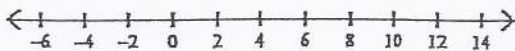


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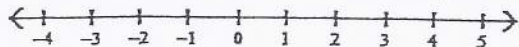
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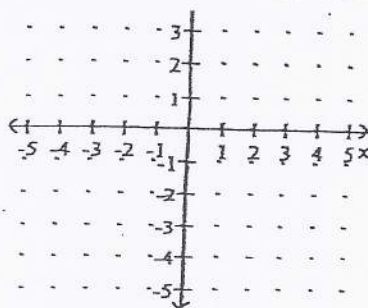
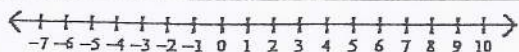
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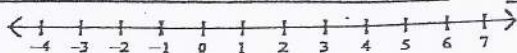


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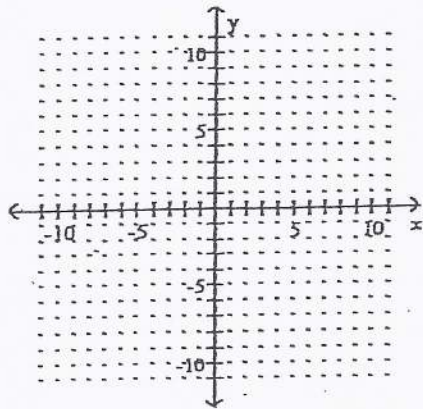
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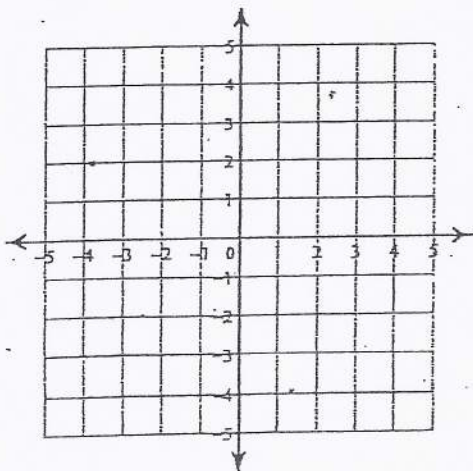
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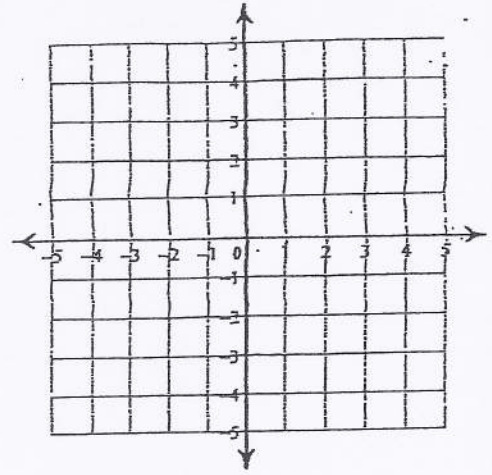
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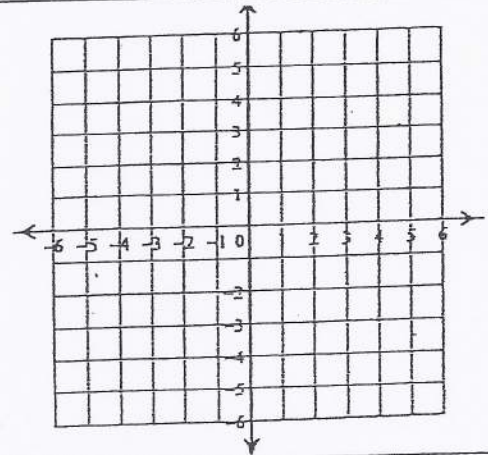
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44 a.)

44 b.)

44 c.)

44 d.)

45 a.)

45 b.)

45 c.)

45 d.)

45 e.)

Name: _____

Date: _____

Algebra 2 Level 9 Summer Packet: This packet is for all students entering Algebra 2 (9)

All work must be shown for credit. The packet is due on Friday September 5, 2014 All answers should be placed on the answer sheet. All work should be placed on the space provided.

1. Simplify.

$$16 - (49 \div 7 \cdot 4 + 10) + 5(9 - 10)^3$$

2. Which property is shown by the following? $(a * b) * c = a * (b * c)$

- A.) Commutative Property of Multiplication
- B.) Associative Property of Multiplication
- C.) Substitution
- D.) Distributive Property

3. Which property would be used to solve the first step of this equation?

$$\frac{3x - 2}{4} = 8$$

- A.) Addition Property of Equality
- B.) Subtraction Property of Equality
- C.) Multiplication Property of Equality
- D.) Substitution

4. Solve each proportion.

$$\frac{3v + 8}{10} = \frac{v + 6}{9}$$

For questions 5-9, solve each equation.

5. $4(2n+3) = -(n-8) + 7n$

6. $-1 + 6n = -(1 - 5n) - 4n$

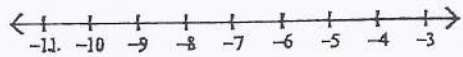
7. $4(x+6) - (4x+24) = 0$

8. $\frac{19}{4} - 3x = \frac{3}{4} \left(\frac{2}{3}x + 1 \right)$

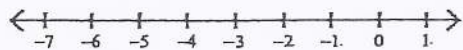
9. $-4 + 5(-7 - n) = 3n - 4(-3 + 2n)$

Solve each inequality and graph its solution.

10. $12 + 6k \leq 5(1 + k)$

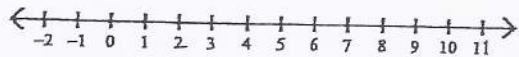


11. $-7(2b + 5) + 6 > -6b + 5(b + 2)$



Solve each compound inequality and graph its solution.

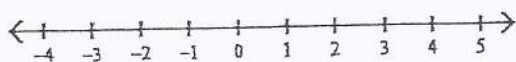
12. $6 + 6k > 0$ and $5k - 8 \leq 37$



13. $1 - 2n < -8 - n$ or $9n - 1 < 2n - 8$



14. $8b + 9 < 7b + 3 < 8b - 10$



Solve each equation.

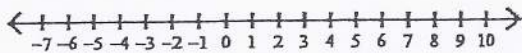
15. $5 - 10|8n + 5| = -45$

Solve each inequality and graph its solution.

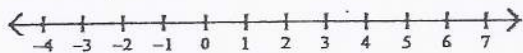
16. $|x - 6| \leq 1$



17. $|10 - 5n| + 1 > 26$



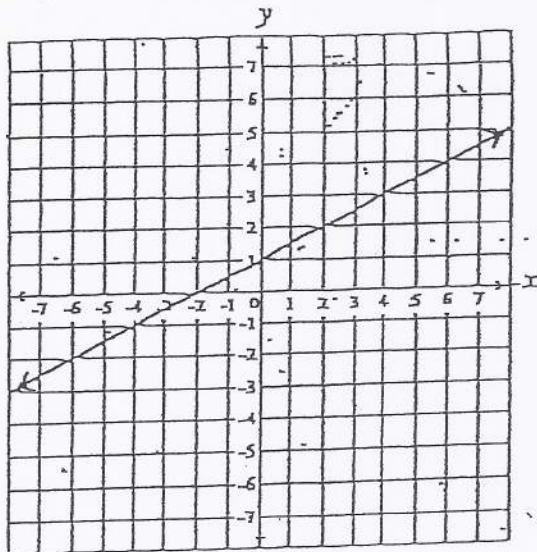
18. $7 - 8|9k - 6| < 55$



Find the slope of the line that goes through the given points.

19) $(3, -8), (-7, -3)$

20)



A. What is the apparent x-intercept?

B. What is the apparent y-intercept?

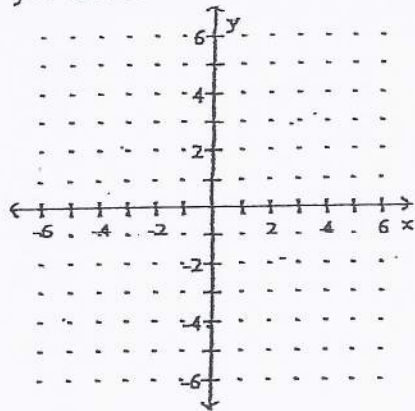
C. What is the slope of the line?

21) $3x + 5y = 22$

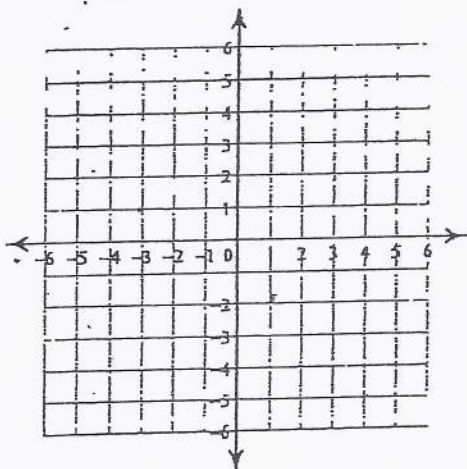
A. Find the slope of the line.

B. Find the y-intercept.

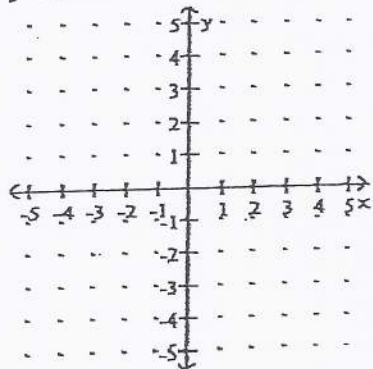
22) $y = -6x + 4$



23) $3x - 5y = -10$



24) Graph the linear equation.
 $y + 3 = 0$



Use the slope-intercept form of the linear equation to write the equation of the line with the given slope and y-intercept.

25) Slope $-\frac{4}{5}$; y-intercept 8

Write the slope-intercept form of the equation of the line through the given point with the given slope.

26. through: $(2, -5)$, slope $= -\frac{1}{2}$.

Write the slope-intercept form of the equation of the line through the given points.

27. through: $(-3, -3)$ and $(3, 1)$

28. through: $(2, 4)$ and $(2, -3)$

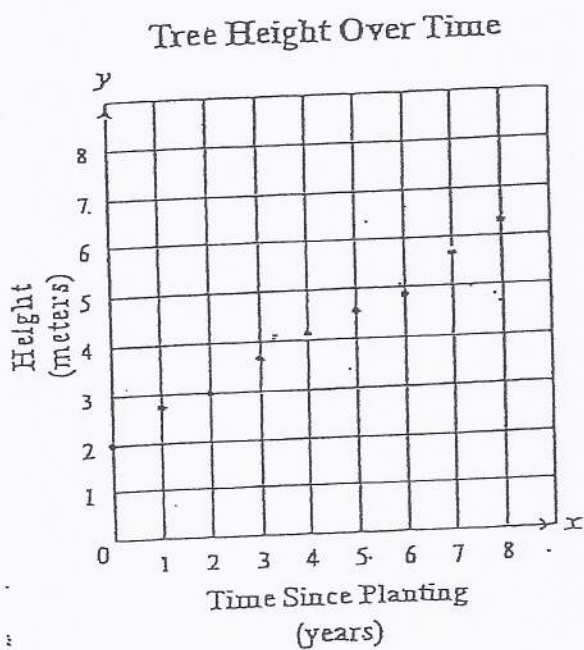
Write the slope-intercept form of the equation of the line described.

29. through: $(3, -1)$, parallel to $y = \frac{1}{3}x + 1$

Write the slope-intercept form of the equation of the line that is perpendicular to the given line.

30. through $(-4, 6)$ and perpendicular to $2x + 3y = -8$

31. Cynthia and her father planted a tree in their front yard 8 years ago. The tree was 2 meters in height when it was planted. The scatterplot below shows how the height of the tree increased each year.



Which of the following most closely approximates the equation of the line of best fit for the data points in the scatterplot?

A. $y = -2x + 2$

B. $y = 2x + 2$

C. $y = -\frac{1}{2}x + 2$

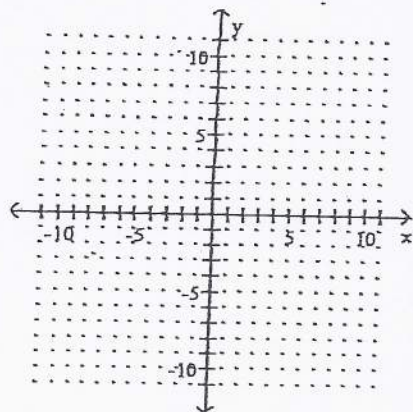
D. $y = \frac{1}{2}x + 2$

Given the function, find the indicated value.

32. Find $f(-2)$ when $f(x) = 2x^2 + 4x + 4$.

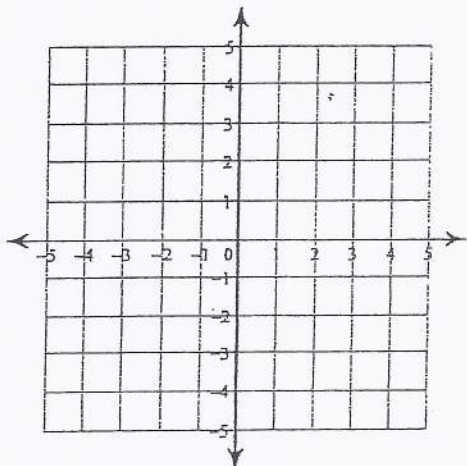
Graph the linear inequality.

33. $3x + 5y \geq -15$

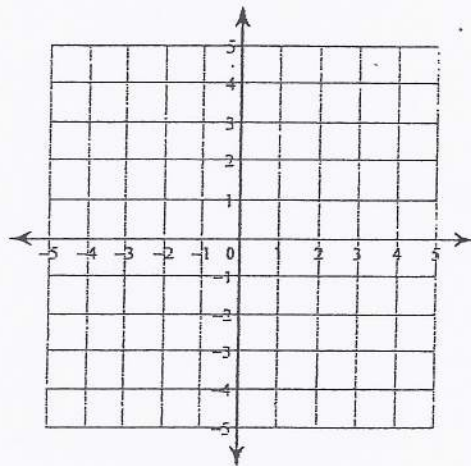


Solve each system by graphing.

34. $y = -5x - 1$
 $y = -x + 3$



35. $3x + y = -1$
 $3x + y = 4$



Solve each system by substitution.

36. $y = 2x + 4$
 $-2x - 4y = -16$

37. $y = 5x - 15$
 $y = -7x + 9$

Solve each system by elimination.

38. $-x + y = 5$
 $-2x + y = 3$

39. $-10x - 4y = 12$
 $20x + 8y = -24$

40. $7x - 3y = 15$
 $3x - 5y = -1$

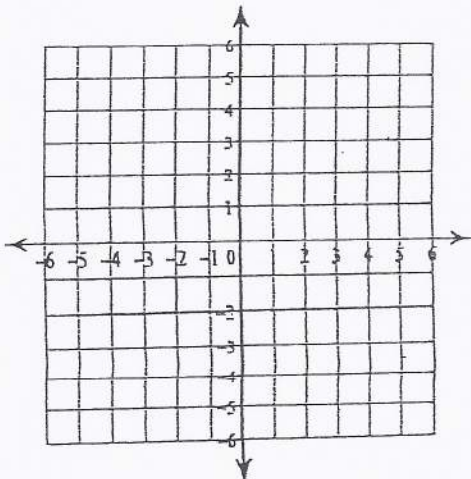
41. Danielle and Darryl are selling pies for a school fundraiser. Customers can buy apple pies and lemon meringue pies. Danielle sold 3 apple pies and 7 lemon meringue pies for a total of \$172. Darryl sold 14 apple pies and 11 lemon meringue pies for a total of \$391. Find the cost each of one apple pie and one lemon meringue pie.

Evaluate each function.

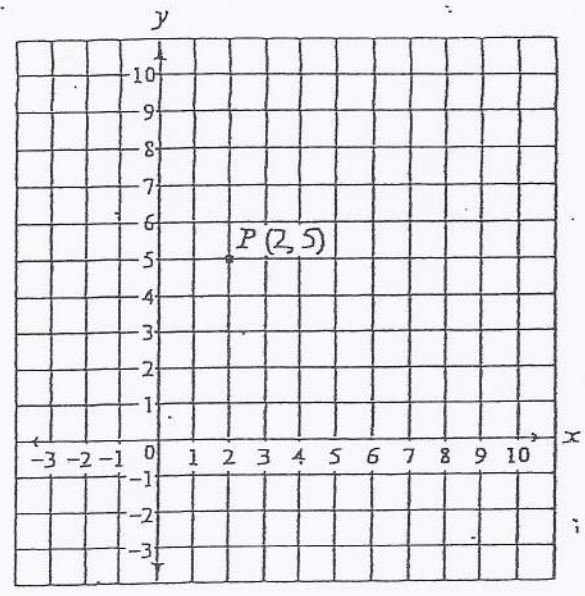
42. $h(x) = x^3 + \frac{1}{4}x^2$; Find $h\left(-\frac{1}{2}\right)$

Sketch the graph of each line.

43. $x = -3$



44. Anthony plotted the point $P(2, 5)$ on a coordinate grid, as shown below.



Anthony then graphed line q on the same coordinate grid.

- Line q contains point P .
- The y -intercept of line q is the point with coordinates $(0, 4)$.

a. What is the slope of line q ? Show or explain how you got your answer.

b. Write an equation of line q . Show or explain how you got your equation.

Anthony also graphed line n on the same coordinate grid. Line n contains point P and is perpendicular to line q .

c. What is the slope of line n ? Show or explain how you got your answer.

d. Write an equation of line n . Show or explain how you got your equation.

45. Mr. Gomez's mathematics test consists of multiple-choice and short-answer questions only.

- Each multiple-choice question is worth 3 points.
- Each short-answer question is worth 5 points.

Let x and y be defined as follows:

- x = the number of multiple-choice questions
- y = the number of short-answer questions

- a. The test has a total of 30 questions. Write an equation in terms of x and y that represents this fact.

- b. Write an expression in terms of x that represents the total point value of all the multiple-choice questions.

- c. Write an expression in terms of y that represents the total point value of all the short-answer questions.

- d. The test has a total of 100 points. Write an equation in terms of x and y that represents this fact.

- e. Use your equations from parts (a) and (d) to determine how many multiple-choice questions and how many short-answer questions are on the test. Show your work.