Geometry Level 2
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 Geometry.
- 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
- Pencils

Name_____ Date_____ Geometry Summer Packet Answer Sheet

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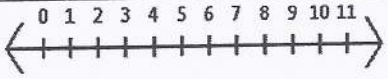
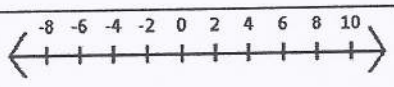
11. 
12. 
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Name_____ Date_____ Geometry Summer Packet Answer Sheet

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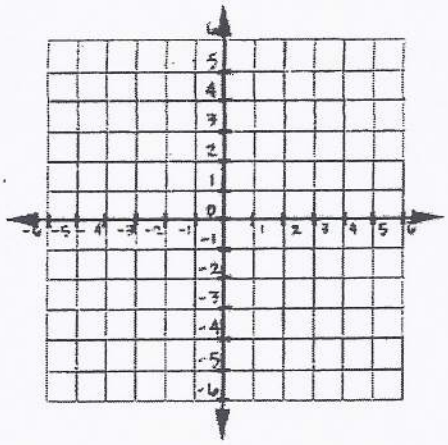

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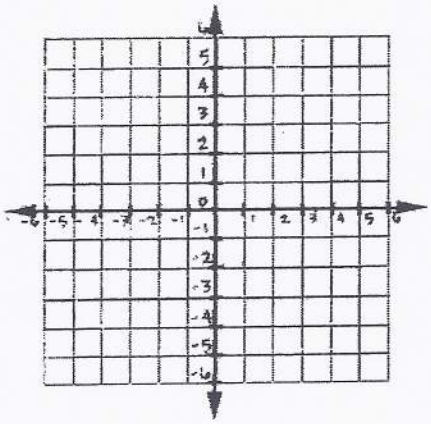

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37a.	37b.
37c.	37d.

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40a.	40b.
40c.	40d.

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GEOMETRY ENTRANCE SUMMER PACKET

Solve each proportion.

1) $\frac{2x+1}{x+6}=\frac{7}{9}$

2) $-2+6(1-8k)=4(-8k+1)$

Evaluate each function.

3) $g(a)=a^2-2+2a$; Find $g(-9)$

4) $\frac{1}{3}k+\frac{24}{5}=-\frac{5}{3}k-6k$

Simplify each expression.

5) $(3x^3-2x-x^2)-(8x^3-4+8x^2)$

Find each product.

6) $(7x-4)(8x-1)$

7) What is the value of the expression below?

$(\sqrt{7})^4$

A. 7

B. 28

C. 49

D. 98

8) What is the value of the expression below?

$6(5-3)-4(2+5-(3-2))$

A. −15

B. −12

C. 4

D. 8

9) What is the value of the expression below?

$$-7\left|2^4 - 10\right| + 3$$

A. −53

B. −39

C. 17

D. 45

10) The label on a cereal box states the following:

- One serving of cereal contains 17 grams of carbohydrates.
- This number of grams is 6% of the maximum amount of carbohydrates that a person should eat in a day.

Based on this information, which of the following is closest to the maximum amount of carbohydrates that a person should eat in a day?

A. 1.02 grams

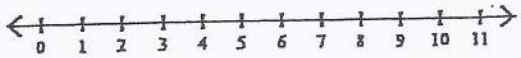
B. 2.83 grams

C. 102 grams

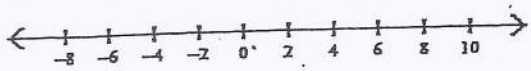
D. 283 grams

Solve each compound inequality and graph its solution.

11) $-7n + 10 < -46$ or $2n - 5 < 1$



12) $-33 \le -4x + 3 \le 27$



Solve each equation.

13) $|3m + 2| = 7$

Factor each completely.

14) $25y^2 - 16x^2$

Solve the Quadratic Equations.

15) $21n^2 + 6n = 0$

16) $5x^2 + 16x + 12 = 0$

Simplify each expression.

17) $\dfrac{3x+15}{x^2+x-20} \cdot \dfrac{x^2-x-12}{x+3}$

18) $\dfrac{n+5}{n^2-49} \div \dfrac{1}{n+7}$

19) $3\sqrt{2} + 2\sqrt{5} + 2\sqrt{2} - 3\sqrt{20}$

20) A technician earns $75 per hour working on computers. She has monthly business expenses of $800. Her profit is the difference between her monthly earnings and her monthly business expenses.

Which of the following inequalities can be used to find the number of hours, x, the technician will have to work on computers in a month to make a profit of more than $2000?

A. $800 - 75x < 2000$
B. $75x - 800 < 2000$
C. $800 - 75x > 2000$
D. $75x - 800 > 2000$

21) Which of the following is equivalent to the expression below for all real values of n and k?

$$5^n \cdot 5^k$$

A. 5^{n+k}
B. 5^{n-k}
C. 5^{nk}
D. $5^{n \div k}$

22) A magazine had 4000 subscribers at the end of the year 2004. The number of subscribers increased by 10% each year as compared with the previous year.

Which of the following is closest to the number of subscribers at the end of the year 2007?

A. 4330
B. 4400
C. 5200
D. 5320

23) Simplify. $\sqrt{175}$

24) The solutions of a quadratic equation are shown below.

$$4 \pm \sqrt{60}$$

Which of the following pairs of numbers is closest to the solutions of the equation?

A. 11 and −3

B. 12 and −4

C. 19 and −11

D. 34 and −26

25) The table below shows a quadratic relationship between values of x and y.

x	1	2	3	4	5
y	−2	1	6	13	22

Which of the following equations describes the relationship between x and y for the values in the table?

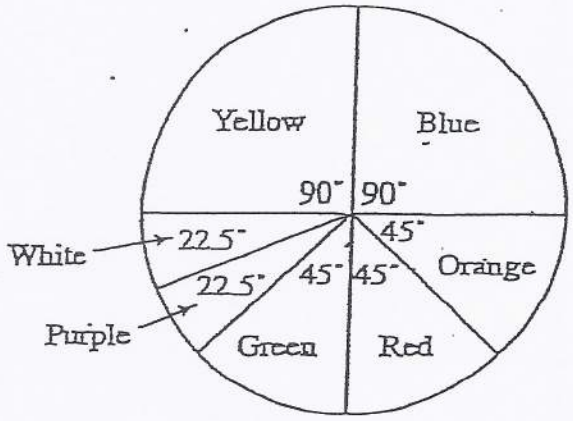
A. $y = x^2 - 4$

B. $y = x^2 - 3$

C. $y = 2x^2 - 4$

D. $y = 3x^2 - 11$

26) The circle graph below shows the colors of 160 marbles.



What is the total number of green marbles?

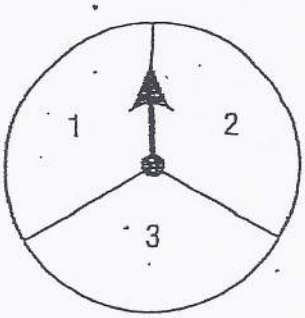
A. 8

B. 20

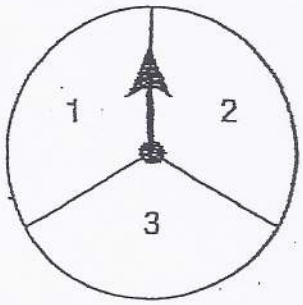
C. 40

D. 45

27) Spinners P and Q shown below are divided into congruent sections.



Spinner P



Spinner Q

The arrow on each spinner will be spun once. The number in the section where the arrow stops on Spinner P will be added to the number in the section where the arrow stops on Spinner Q.

What is the probability that the sum of the two numbers will be 5?

A. $\frac{1}{9}$

B. $\frac{2}{9}$

C. $\frac{1}{3}$

D. $\frac{2}{3}$

28) Solve each system by substitution.

$2x - 4y = 6$
$y = 5x + 3$

29) Solve each system by elimination.

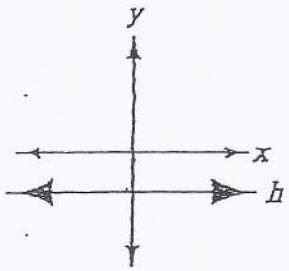
$9x - 5y = -22$
$9x - 10y = 28$

30) Write the slope-intercept form of the equation of each line.

$9x - 8y = -48$

31) In which of the following graphs does line h best represent a line with an undefined slope?

A.



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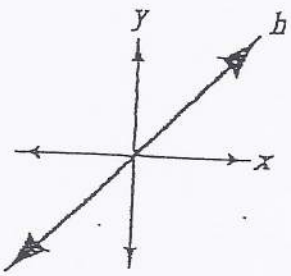

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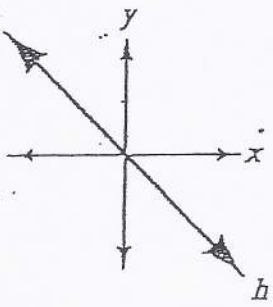

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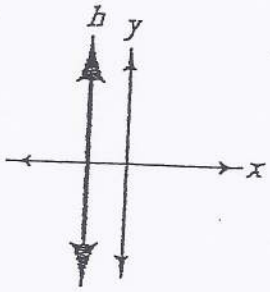
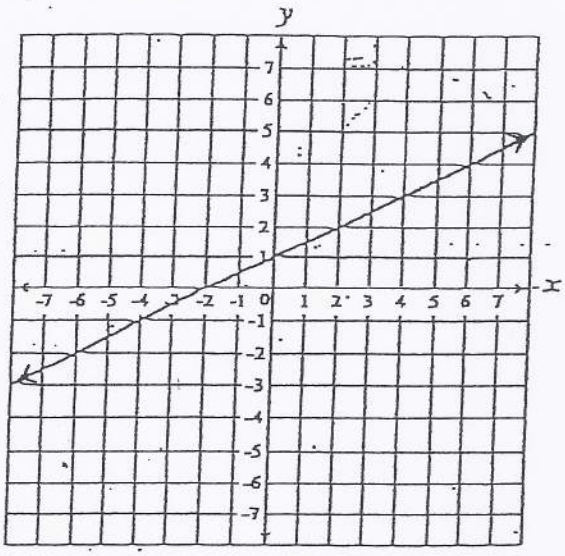


32)

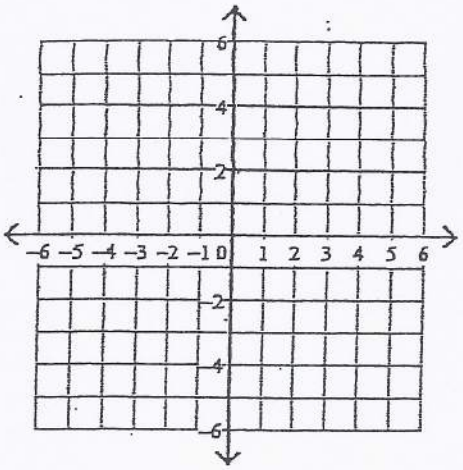


a) What is the apparent x-intercept ?

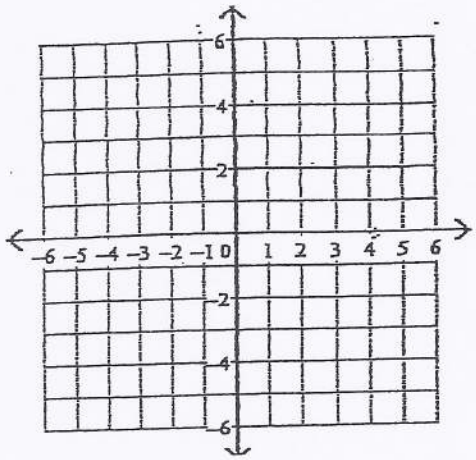
b) What is the apparent y-intercept?

Sketch the graph of each line.

33) $x = -1$



34) $y = -\frac{1}{5}x + 3$



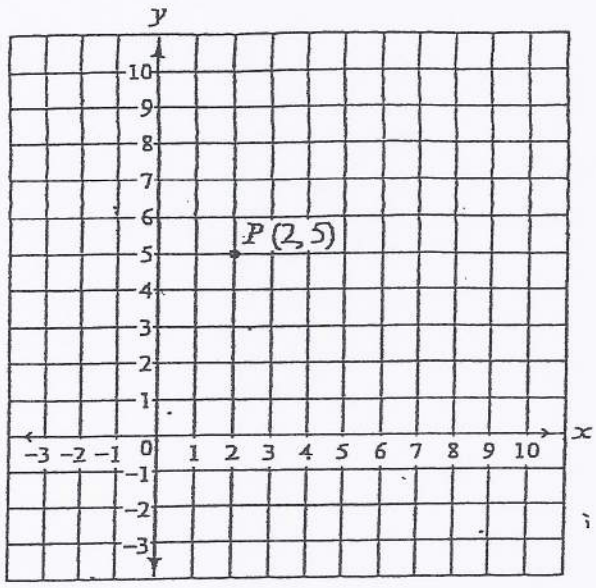
Write the slope-intercept form of the equation of the line through the given points.

35) through: (–3, 2) and (5, –1)

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

36) through: (–5, 4), parallel to $y = -\frac{1}{5}x + 4$

37) 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.

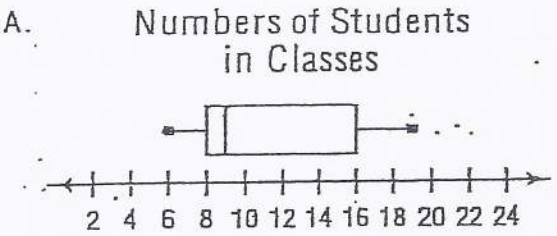
d. Write an equation of line n. Show or explain how you got your equation.

38) A community center offers classes for students.

- The range of the number of students in each class is 13.
- The median number of students in each class is 9.

Which of the following box-and-whisker plots could represent the numbers of students in the classes?

A.



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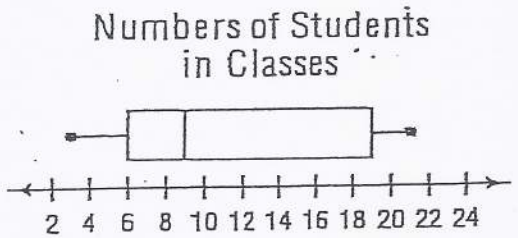

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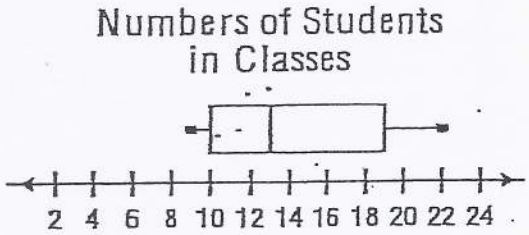

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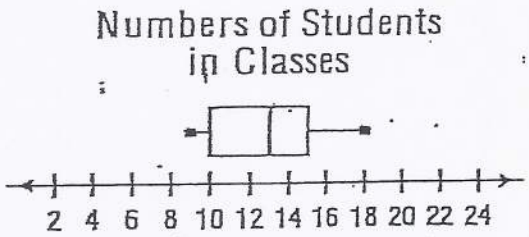
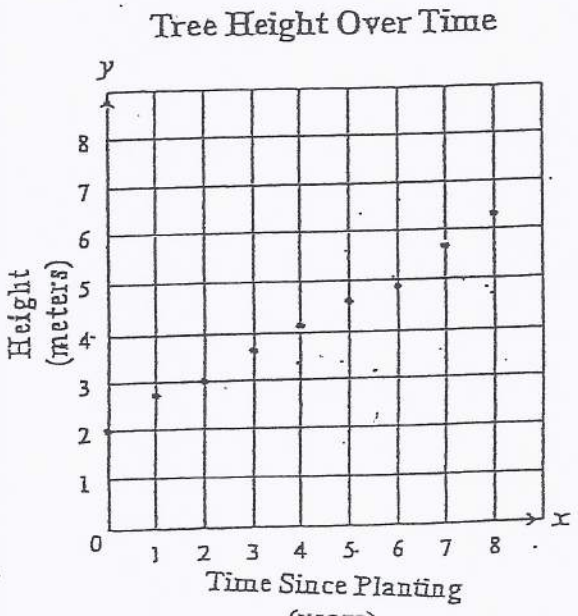


39) Cynthia and her father planted a tree in their front yard 8 years ago. The tree was 2 meters in height when it was planted. The scatterplot below shows how the height of the tree increased each year.



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

40) When Nuri buys an item from a catalog, the total amount he pays is made up of the following three amounts of money:

- the price of the item
- sales tax of 5% of the price of the item
- a fixed shipping fee that is always the same regardless of the cost or size of the order

Nuri bought a game with a price of $100 from the catalog.

a. What was the sales tax, in dollars, that Nuri paid on the game? Show or explain how you got your answer.

b. The total amount, including the sales tax and the shipping fee, that Nuri paid for the game was $120. What was the shipping fee, in dollars? Show or explain how you got your answer.

c. Nuri bought an item with a price of $400 from the catalog. What is the total amount he paid, in dollars, including the sales tax and the shipping fee? Show or explain how you got your answer.

d. Write an equation that expresses the relationship between y, the total amount paid for an item from the catalog including the sales tax and shipping fee, and x, the price of the item. Show or explain how you got your equation.