

# **Geometry**

## **Summer Packet**

**This packet of exercises reflects skills that the Math Department considers essential for your success in Geometry!**

**In this packet you will find the following:**

- Questions on material previously learned in Algebra 1 and years prior to that.
- Topics from Khan Academy referenced in the directions for each problem set. If you are having difficulty recalling how to do a specific type of problem, the Khan Academy videos are an excellent resource for re-teaching. Go to [www.khanacademy.org](http://www.khanacademy.org), type in the phrase provided, and it will take you to a video(s) about the topic. Khan Academy also provides further practice on the topics that you can do for your own self-assessment.

**Your Responsibility is to:**

- Complete all problems and show all necessary work **clearly and carefully**
- Turn in the packet on **THE FIRST DAY OF SCHOOL!** It will be collected and checked for completion on the first day of school.

**You will be tested on the material within the first two weeks of school.**

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**Have a great summer!**

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Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each equation. (Khan Academy Video: Variables on both sides)

1)  $-\frac{3}{2}\left(3v + \frac{5}{2}\right) = -\frac{251}{36} + \frac{1}{3}v$

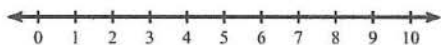
2)  $-\frac{4}{3}\left(-\frac{3}{2}x + \frac{3}{2}\right) - \frac{4}{3} = -3\frac{1}{3}x - \frac{34}{3}$

3)  $5(1 + 2k) = 3 + 7(8 + 4k)$

4)  $-3x - 2x = 8(4 - 2x) + 8(x - 1)$

Solve each inequality and graph its solution. (Khan Academy Video: Two Step Inequality example)

5)  $-190 > -5(8n + 6)$



6)  $-6(-3 - 5x) < 228$



Solve each proportion. (Khan Academy Video: Proportions 2)

7)  $\frac{8}{b-1} = \frac{11}{b+2}$

8)  $-\frac{5}{11} = \frac{5b-4}{2b+12}$

Solve each system by substitution.(Khan Academy Topic: Solving Linear Systems by Substitution)

9)  $4x + y = 4$   
 $-3x - 2y = 7$

10)  $2x - 8y = 12$   
 $-3x - 2y = 24$

Solve each system by elimination.(Khan Academy Topic: Solving Linear Systems by elimination and Solving Linear Systems by Multiplication)

11)  $6x + 4y = 18$   
 $-6x - 3y = -18$

12)  $3x - 2y = -11$   
 $5x - 3y = -20$

Simplify.(Khan Academy Topic: Simplifying radicals)

13)  $\sqrt{108}$

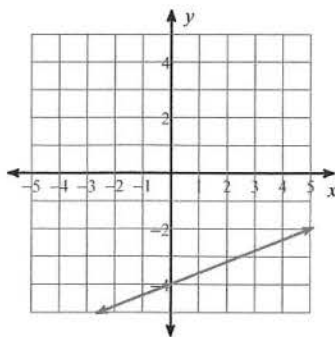
14)  $\sqrt{8}$

15)  $3\sqrt{32}$

16)  $4\sqrt{112}$

Write the slope-intercept form of the equation of each line given the information provided.(Khan Academy Topic: Constructing equations in slope intercept form - there are multiple videos on this topic, Also see equations of parallel and perpendicular lines)

17)



18)  $4x + 3y = 22$

19)  $y - 3 = 3(x - 4)$

20) Slope =  $-\frac{1}{2}$ , y-intercept =  $-1$

21) through:  $(3, -1)$ , slope =  $-\frac{2}{3}$

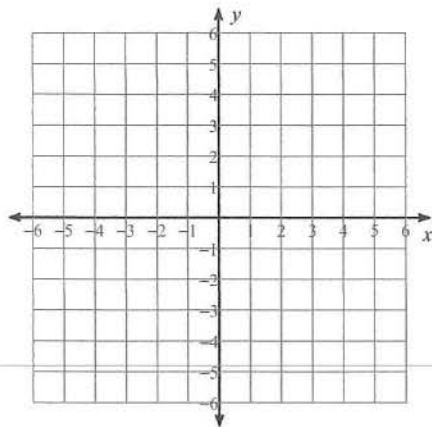
22) through:  $(-5, 2)$  and  $(4, -4)$

23) through:  $(-1, 4)$ , parallel to  $y = -2x - 5$

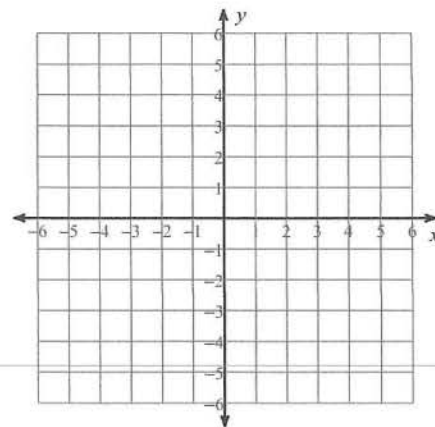
24) through:  $(1, -1)$ , perp. to  $y = \frac{1}{4}x + 4$

**Sketch the graph of each line. (Khan Academy Topic: Graphing linear equations in slope intercept form)**

25)  $3x + y = -4$



26)  $x = 4$



**Simplify each expression. (Khan Academy Topic: Addition and subtraction of polynomials)**

27)  $-3(b - 3) + 3(4b + 3)$

28)  $7(6r + 8) - 5(1 + 8r)$

**Factor each completely. (Khan Academy Topic: Factoring Quadratics)**

29)  $a^2 - 7a + 10$

30)  $5x^2 + 100x + 500$

31)  $4x^3 - 44x^2 + 112x$

32)  $3a^3 - 27a$

33)  $5n^2 + 17n + 6$

**Solve each equation by factoring. (Khan Academy Topic: Solving a quadratic equation by factoring)**

34)  $v^2 = 14 - 5v$

35)  $x^2 = 9$

36)  $x^2 = -24 - 11x$

37)  $b^2 = 4b$

**Evaluate each function. (Khan Academy Video: Evaluating with function notation)**

38)  $p(t) = 2t + 4$ ; Find  $p(2)$

39)  $p(n) = -n^2 + 5n$ ; Find  $p(-3)$

40)  $p(x) = x^2 + 5$ ; Find  $p(-5)$

**Evaluate each expression. (Khan Academy Video: Adding and subtracting fractions)**

41)  $1\frac{2}{3} + \left(-1\frac{6}{7}\right) + 3 + 2$

42)  $2\frac{1}{4} - \frac{1}{4} + \left(-2\frac{5}{6}\right) + 3\frac{1}{4}$

**Find each quotient. (Khan Academy Video: Multiplying and dividing fractions)**

43)  $\frac{3\frac{3}{4}}{\frac{4}{5}}$

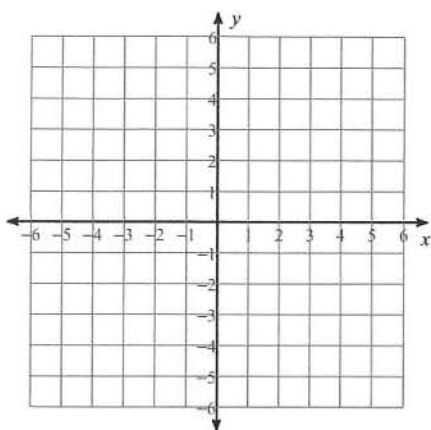
44)  $\frac{-2}{\frac{1}{4}}$

Evaluate each using the values given. (Khan Academy Video: Evaluating expressions in one variable)

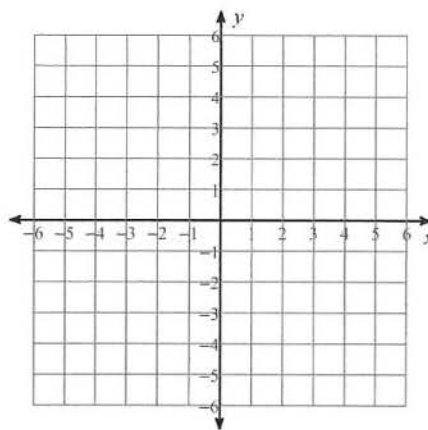
45)  $yx - x - (x^2 + y)$ ; use  $x = -3$ , and  $y = -13$

Sketch the graph of each line. (Khan Academy Topic: Graphing Linear Equations)

46)  $y = -\frac{3}{5}x - 4$

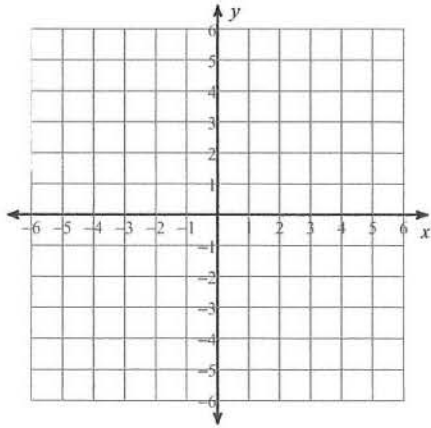


47)  $4x - 3y = 6$

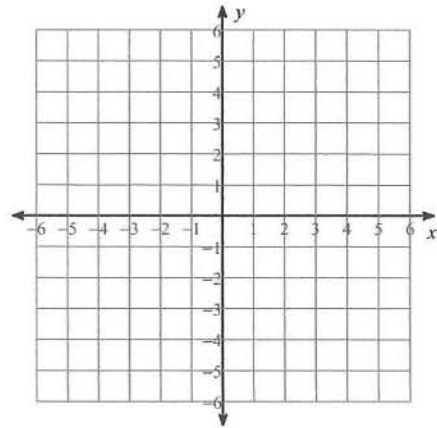




48)  $x$ -intercept =  $-4$ ,  $y$ -intercept =  $2$

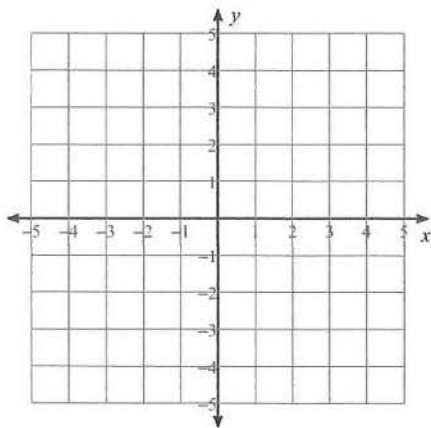


49)  $10y - 4x - 10 = 0$

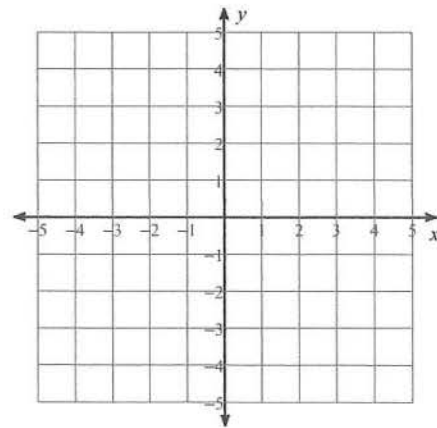


**Solve each system by graphing. (Khan Academy Topic: Graphing Systems of Equations)**

50)  $y = x - 4$   
 $y = -\frac{5}{2}x + 3$



51)  $y = \frac{1}{4}x + 4$   
 $y = -\frac{3}{2}x - 3$



**Find each product. (Khan Academy Topic: Multiplying Polynomials)**

52)  $(x + 2)(4x + 5)$

53)  $(7b + 4)(5b - 2)$

54)  $(7r - 3)(2r + 3)$

55)  $(4n - 1)(8n - 6)$

56)  $(3v - 7)(v + 2)$

57)  $(3x + 6)(2x + 6)$

58)  $(2n + 7)(8n^2 + 6n - 1)$

59)  $(4b - 5)(5b^2 - 8b - 1)$

**Simplify. Your answer should contain only positive exponents.**

60) 
$$\frac{(ab^0)^{-3} \cdot (a^{-3}b^{-1})^{-4}}{2ba^{-3}}$$

61) 
$$\frac{2xy^{-2} \cdot (2x^3y^3)^3}{x^{-1}}$$

62) 
$$\frac{y^4 \cdot x^{-4}y^0}{(x^2y^3)^{-4}}$$

63) 
$$\frac{(u^{-2} \cdot u^{-3}v^{-4})^4}{2uv^{-2}}$$

64) 
$$\frac{(y^4)^2 \cdot x^2}{2xy^3}$$

65) 
$$\frac{2u}{2vu^4 \cdot (2u^{-3}v^3)^{-4}}$$