Summer Assignment for Students Going into
7th or 8th grade Algebra I, part 2

Directions:

1. **Complete the following problems in this packet in the space provided**
without a calculator. If you need more space, attach your work. Show all work
for full credit.

2. If you need instruction or review of the topics in this packet, go to
http://www.khanacademy.org/ . These are excellent videos that will re-teach and
remind you how to go about the problems in this packet.

3. **These problems should be a good review of the concepts that are necessary**
for you to know at the start of the course you are entering.

4. Bring this completed packet of problems, including your work, with you to math
class on the first day of school. **It will be collected and graded.**

5. **Be sure you understand this material thoroughly and be prepared to take a**
30-point quiz on this material on the third day of school.

Summer Assignment for students going into Algebra I, Part 2.   Name_____

These problems should be done without a calculator.   Show all work. Fractional answers should be left as improper fractions, not as mixed numbers.

You should know how to add, subtract, multiply and divide fractions.

1) $\dfrac{1}{4} + \dfrac{3}{8} + \dfrac{5}{16}$

2) $1\dfrac{1}{7} + 5\dfrac{2}{5}$

3) $\dfrac{7}{8} - \dfrac{1}{3}$

4) $4\dfrac{3}{10} - \dfrac{3}{5}$

5) $19 - 9\dfrac{1}{4}$

6) $28\dfrac{3}{8} - 9\dfrac{3}{4}$

7) $\dfrac{3}{8} \cdot \dfrac{1}{4}$

8) $\dfrac{3}{4} \cdot 22$

9) $4\dfrac{3}{5} \cdot 4$

10) $\dfrac{3}{5} \div \dfrac{5}{6}$

11) $\dfrac{3}{4} \div 22$

12) $9 \div \dfrac{2}{3}$

13) $5\dfrac{1}{6} \div \dfrac{1}{3}$

14) $7\dfrac{5}{6} \div 1\dfrac{1}{5}$

15) $\dfrac{3}{5} \cdot \dfrac{4}{9} \cdot \dfrac{25}{27}$

You should know how to simplify expressions, collect like terms. Remember the distributive property.

16-19 Simplify the expression:

16) $8t + 6s - 3t + 5s$

17) $4(2x + x) - 6(4x + 3)$

18) $x - 5y - (-4x + 3y)$

19) $-2m + 5j - (-m - j)$

You should know how to solve equations in one variable. Remember collecting like terms, the distributive property and using inverse operations. Check your answer.

#20-29 Solve for x: Show your work.

20) $163 - x = -52$

21) $5(x + 2) - 3 = 3x - 7$

22) $\dfrac{5}{9}x - 4 = 6$

23) $4(3x + 2) = 10 + 3x$

24) $5(x - 3) - 7(x + 1) = 4$

25) $\dfrac{3}{4}(x + 4) = \dfrac{2}{3}$

26) $\dfrac{x + 5}{5} = \dfrac{3}{10}$

27) $7x - 2(3x + 4) = 15$

28) $19 - 3(2x - 1) = 10$

29) $2x + 3(x - 2) = 5$

You should know how to solve inequalities. Remember to change the inequality sign if you multiply or divide both sides of the inequality by a negative number. Make sure you understand why this is so.

#30-33. Solve the inequalities. Graph the solution on a number line. Show your work.

30) $-\dfrac{2}{3}x > 6$

31) $13 - x \le 21$

32) $9x + 4 - 10x > -3$

33) $5x - (x - 8) > 9 + 3(2x - 3)$

You should know how to evaluate expressions. Remember to use PEMDAS for the order of operations.

#34- 37 Evaluate the following:

34) $\dfrac{x - y}{4}$ for x=1 and y=7.

35) x^2 for x = -3.

36) $(y - 3)^3$ for y = 6.

37) $-2x^2 + 3x$ for x = -1.

You should know how to find the slope of a line given 2 points or the equation of the line.

#38-42: Find the slope of the line:

38) Through the given points: (-3,7) and (1,0).

39) Through the given points: (2,4) and (6,-4).

40) Given the equation: $2y - x = 7$.

41) Given the equation: y=6.

42) Given the equation: x=-2.

You should know how to write the equation of a line in slope intercept form, y=mx+b, and use the equation of a line to answer questions about the line and graph the line.

#43- 45. Write the equation of a line (in slope-intercept form) given the following information:

43) Given the slope 5 and y intercept (0, -2).

44) Given the slope of -3 and passing through the point (2,6).

45) Given two points: (2,6) and (-5,13).

46) Find the slope of a line that is perpendicular to the line $3x - 8y = 10$.

47) Write the equation of a vertical line through the point (5,-1). Find the coordinates of another point on that line.

48) Write the equation of the line that is parallel to the line $5x + 3y = 1$ and contains the point (0,-2).
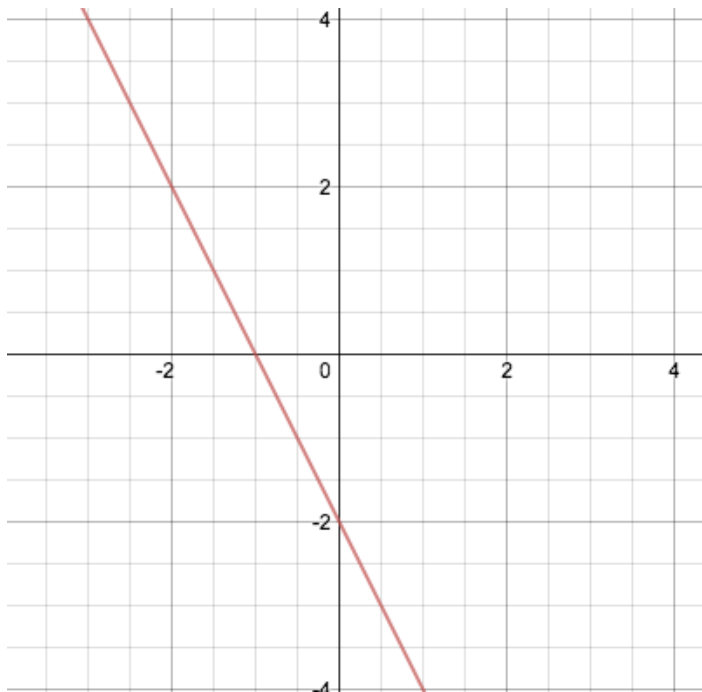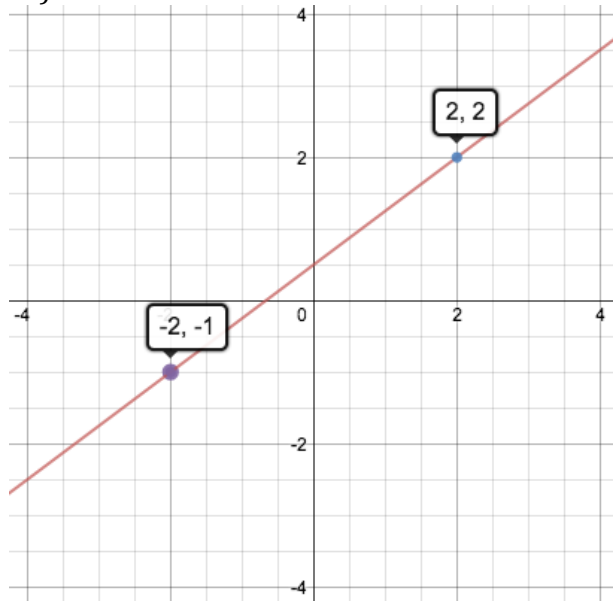
49) Graph the line with slope -2/3 and y-intercept 2.
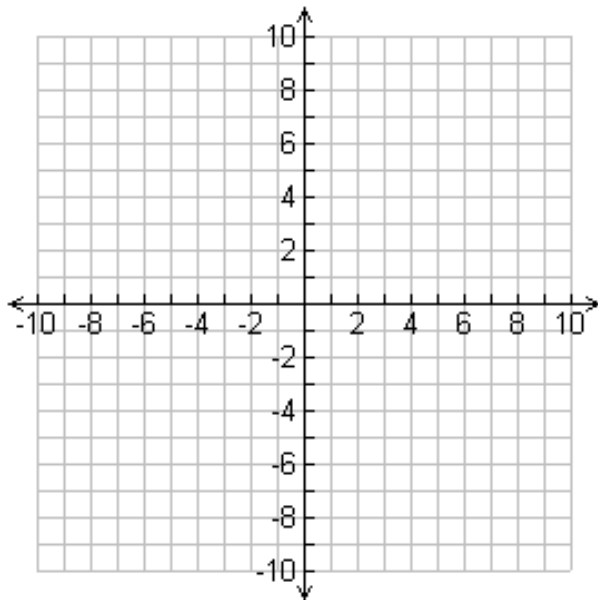
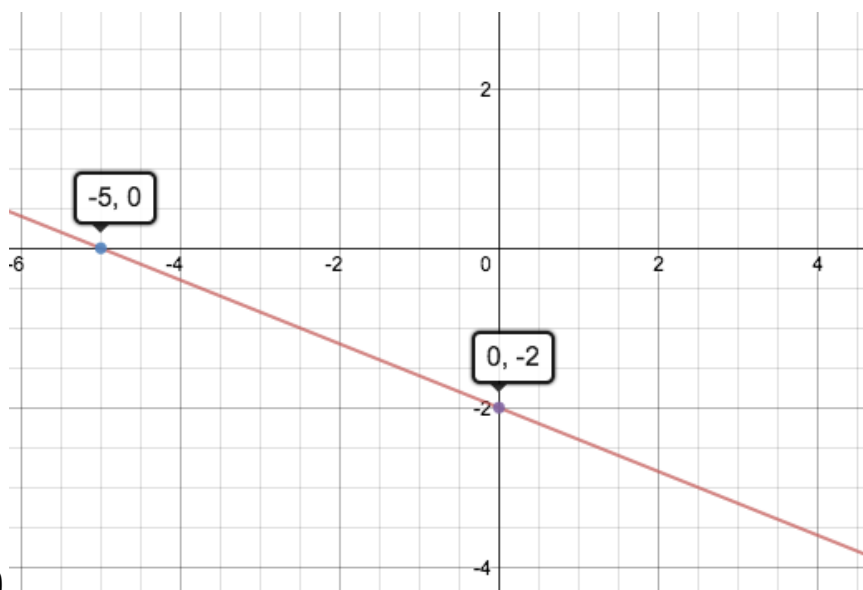
50) Find the x and y intercepts of the line: $5x - y = 15$.

51) Write the equation of a horizontal line through the point (-7,5).

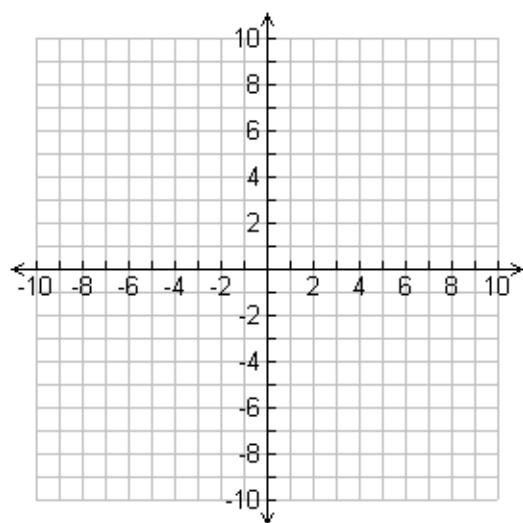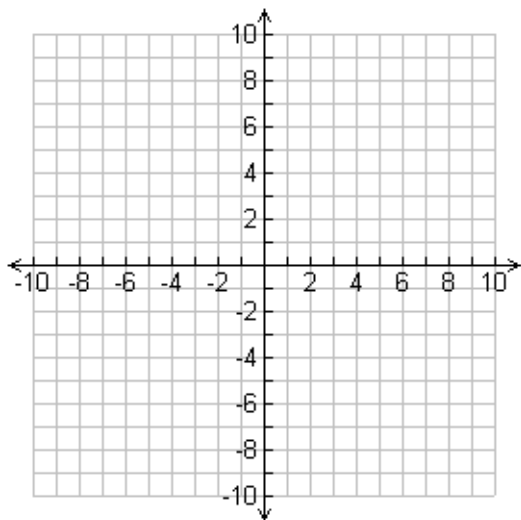Write the equation in slope-intercept form for each of the lines graphed below.

52)

53)

54)

55) Graph the line: x-2y=2.

56. Solve the following system by graphing:
$$y = \frac{1}{2}x + 1$$
$$y - 2x = -2$$

57. Solve by substitution:
$$y - 2x = 0$$
$$3x + 7y = 17$$

58. Solve by elimination:
$$3x - 2y = 10$$
$$5x + 3y = 4$$

59. Translate to a system of equations and solve:

The perimeter of a rectangle is 49 m. The width of the rectangle is 2 more than half the length. Find the length and the width.

60. Translate to a system of equations and solve:

There were 200 tickets sold for a school basketball game. Tickets were $1.50 for students and $3.00 for adults. The total amount collected was $495.00. How many of each type of ticket were sold?