

Dear Upcoming Algebra I Student,

As you prepare for your Algebra I class next year, we have a lot of intriguing topics to learn about, many of which will build upon your prior knowledge to help you create connections to new concepts! Please make sure to refresh your memory of some basic math skills over the summer through completing this packet.

In September, you will be expected to be proficient in your knowledge and skills regarding the included concepts. A strong conceptual understanding of these topics is essential for success.

Please **complete all of the practice problems on white lined paper**. You may be assessed on these concepts during the first week of school, so be sure **to let your teacher know** upon returning if you still need help understanding any of them. After **checking your answers**, please **retry** any problems you had incorrect, and come to school with a list of **specific questions** relating to any of the ideas/problems in this packet.

Our goal this year (and the goal in providing this assignment) is to **help** you and **prepare** you, **not** to stress you! :))

We are looking forward to an amazing year filled with learning! Have a wonderful summer!

Sincerely,

The Cranford High School Math Department

***Note: There are some supplemental video links on the next pages, which you may find helpful! ☺**

Supplemental Videos:

#1-8 Adding and Subtracting Integers

<https://www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-sub-neg-intro/v/adding-and-subtracting-negative-number-examples>

#9 and 10 Absolute Value

<https://www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-abs-value/v/absolute-value-of-integers>

#11 and 12 Square Roots

<https://www.khanacademy.org/math/algebra/rational-exponents-and-radicals/alg1-radicals/v/introduction-to-square-roots>

#13-24 Multiplying & Dividing Integers

<https://www.khanacademy.org/math/arithmetic-home/negative-numbers/mult-divide-negatives/v/multiplying-and-dividing-negative-numbers>

<https://www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-mult-divide-negatives/v/dividing-positive-and-negative-numbers>

<https://www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-mult-divide-negatives/v/multiplying-positive-and-negative-numbers>

#25-28 Order of Operations

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-order-of-operations/v/order-of-operations>

#29-32 Adding & Subtracting Fractions

<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-add-sub-fractions/v/adding-small-fractions-with-unlike-denominators>

<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-add-sub-fractions/v/subtracting-small-fractions-with-unlike-denominators>

*For #33-36 you may need to convert some mixed numbers into improper fractions. See this video for an example:

<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-mixed-number/v/changing-a-mixed-number-to-an-improper-fraction>

#33 and 34 Multiplying Fractions

<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-multiply-fractions/v/multiplying-fractions>

#35 and 36 Dividing Fractions

<https://www.khanacademy.org/math/arithmetic/fraction-arithmetic/arith-review-dividing-fractions/v/dividing-fractions-example>

#37 – 44 Combining Like Terms and the Distributive Property

<https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-expressions-and-variables/cc-6th-combining-like-terms/v/combining-like-terms-1>

<https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-variables-expressions/cc-7th-factoring/v/factoring-algebraic-expressions>

#45 – 52 One-Step Equations

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-equations-expressions#pre-algebra-one-step-add-sub-equationss>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-equations-expressions#pre-algebra-one-step-mult-div-equations>

#52 – 60 Multi-Step Equations

<https://www.khanacademy.org/math/algebra/one-variable-linear-equations/alg1-equations-with-parentheses/v/solving-equations-with-the-distributive-property>

#61 – 64 Multi-Step Equations with a Variable on Both sides

<https://www.khanacademy.org/math/algebra/one-variable-linear-equations/alg1-variables-on-both-sides/v/solving-equations-2>

#65 & 66 Slope from a Graph

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/slope/v/slope-of-a-line>

#66 & 67 Slope from Two Points

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/slope/v/slope-of-a-line-2>

#69 & 70 Slope from an Equation

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/forms-of-two-var-linear-equations/v/slope-from-equation>

#71 – 76 Graphing Lines

<https://www.khanacademy.org/math/in-in-grade-9-ncert/in-in-chapter-4-linear-equations-in-two-variables/in-in-graph-of-a-linear-equation-in-two-variables/v/graphs-of-linear-equations>

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/hor-and-ver-lines-alg1/v/examples-of-slopes-and-equations-of-horizontal-and-vertical-lines>

#77 & 78 Writing the Equation from a Graph

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/writing-slope-intercept-equations/v/graphs-using-slope-intercept-form>

#79 & 80 Writing the Equation given a Slope and y-intercept

<https://www.khanacademy.org/math/algebra/two-var-linear-equations/slope-intercept-form/v/slope-intercept-form>

#81 & 82 Rearranging to Slope-Intercept Form

<https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-slope/v/converting-to-slope-intercept-form>

#83 – 90 Writing Expressions

<https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-writing-expressions/v/writing-expressions-1>

#91 and 92 Solving Proportions

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-write-and-solve-proportions/v/find-an-unknown-in-a-proportion>

#93 and 94 Percent Problems

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-word-problems/v/solving-percent-problems>

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-problems/v/finding-percentages-example>

Evaluate each expression.

1) $(-6) + (-1)$

3) $(-8) - 1$

5) $(-7) - 6 + (-4)$

7) $4 - 4 - 7$

9) $|4|$

11) $\sqrt{81}$

2) $1 + (-2)$

4) $1 - (-8)$

6) $(-3) - (-6) - 2$

8) $(-3) - 6 - (-5)$

10) $|-7|$

12) $\sqrt{64}$

Find each product.

13) $(-3)(-9)$

15) $(-10)(-1)(-10)$

17) $-5 * 0$

14) $(8)(-7)$

16) $(3)(8)(-3)$

18) $-5 * -1$

Find each quotient.

19) $\frac{-8}{-1}$

21) $12 \div -6$

23) $\frac{3}{0}$

20) $-6 \div -2$

22) $\frac{-30}{3}$

24) $\frac{0}{9}$

Evaluate each expression.

25) $-4 + -5 - (-6 - -5)$

27) $\frac{3 - -5}{-4 \cdot -1}$

26) $-6 - |2 - 6|$

28) $(-3)^2 |6|$

Find each sum.

29) $\frac{7}{8} + \frac{3}{2}$

30) $\frac{1}{4} + 2\frac{1}{2}$

Find each difference.

31) $\frac{5}{7} - \frac{1}{2}$

32) $4\frac{3}{8} - \frac{1}{2}$

Find each product.

33) $1\frac{2}{5} \cdot \frac{1}{4}$

34) $2 \cdot \frac{5}{6}$

Find each quotient.

35) $\frac{1}{3} \div \frac{5}{8}$

36) $\frac{1}{2} \div 2$

Simplify each expression.

37) $-9b + 9b$

39) $-5(n - 10)$

41) $-p + 7(5 + 5p)$

43) $-7(10x - 6) - 2(8 + 5x)$

38) $5k - 2 + 4k - 7$

40) $-10(1 + 10r)$

42) $4b + 5(-1 + 4b)$

44) $-8(1 + 3r) - 9(4 + 10r)$

Solve each equation.

45) $b - 20 = -20$

47) $p - 12 = -20$

49) $20x = 300$

51) $\frac{k}{11} = -14$

53) $\frac{x}{7} - 6 = -8$

55) $\frac{x - 10}{3} = -7$

57) $127 = -x + 4(5x + 8)$

59) $105 = -5(-2v - 5)$

61) $v + 9 = 2v + 6$

63) $n - 7 = -5 + 3n$

46) $n - 2 = 6$

48) $-27 = x - 16$

50) $\frac{a}{18} = 12$

52) $\frac{x}{13} = -15$

54) $-2m - 6 = 34$

56) $4(x + 8) = 88$

58) $2(7a - 2) = -116$

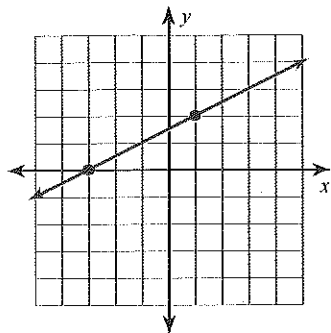
60) $224 = 6(3k + 4) + 7k$

62) $2 - 2m = -14 + 2 + m - 7$

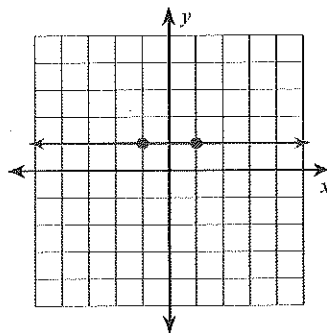
64) $1 + 2x = 13 - x$

Find the slope of each line.

65)



66)



Find the slope of the line through each pair of points.

67) $(14, 0), (-11, -7)$

68) $(3, 15), (17, 5)$

Find the slope of each line.

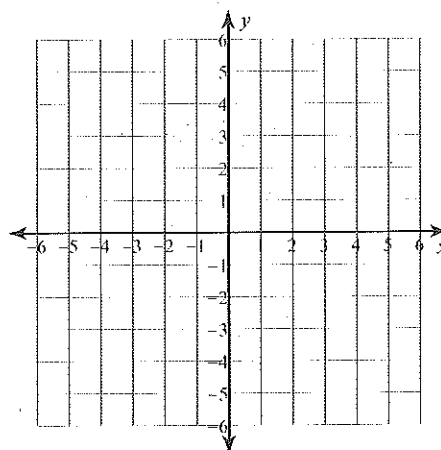
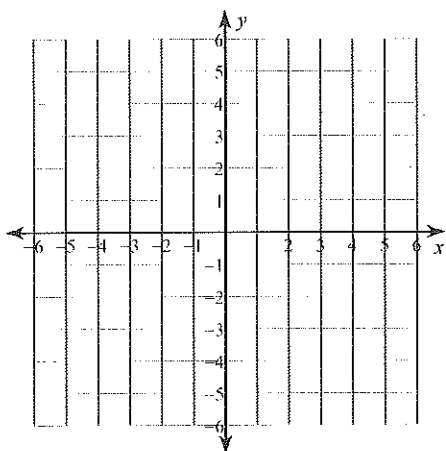
69) $y = x + 1$

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

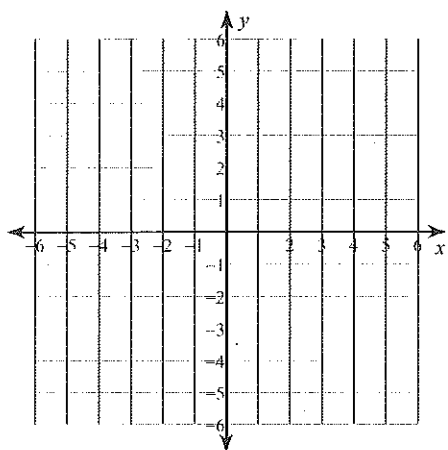
Sketch the graph of each line.

71) $y = \frac{1}{2}x + 3$

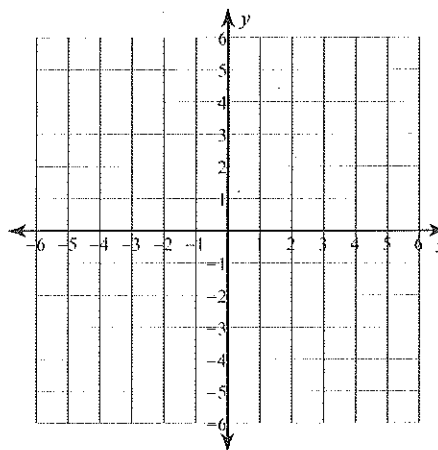
72) $y = -\frac{5}{4}x$



73) $y = 1$



74) $y = 5x + 4$

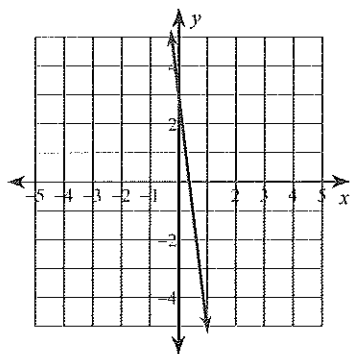


75) Consider the line $x = 2$. Is this vertical or horizontal? Is the slope undefined or zero?

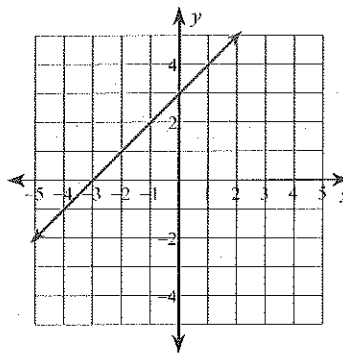
76) Consider the line $y = 5$. Is this vertical or horizontal? Is the slope undefined or zero?

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

77)



78)



Write the slope-intercept form of the equation of each line given the slope and y-intercept.

79) Slope = $\frac{7}{4}$, y-intercept = 2

80) Slope = 9, y-intercept = -5

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

That is, isolate y so you have $y = mx + b$ form.

81) $7x + 4y = -20$

82) $x + 7y = -7$

Write each as an algebraic expression.

83) the sum of 11 and b

84) the product of q and 10

85) the quotient of p and 5

86) half of n

87) the difference of 30 and x

88) 8 less than u

89) n less than 24

90) 5 squared

Solve each proportion.

91) $\frac{n}{2} = \frac{4}{8}$

92) $\frac{6}{m} = \frac{8}{2}$

Solve each problem.

93) What percent of 135 is 121?

94) 68 is what percent of 135.5?