

# Summer Assignment for Students Going Into Algebra 1 Part 2 (all grades)

Directions:

- ❑ Complete this packet one topic at a time following the directions below:
  - ❑ Complete all problems in the section, showing all of your work. If there is no work to show, write a sentence or two explaining your answer. **You may not use a calculator on this assignment. Only questions with work and/or explanations will be counted as complete.**
  - ❑ Write your final answer/solution on the chart on the next page.
  - ❑ Check your answers using the answer key on the last page of this packet.
    - ❑ If a question is wrong, that's okay! Check your work for any mistakes and try again :).
    - ❑ If multiple questions are wrong or you don't understand how to arrive at the correct answer, it's probably time to get extra help (see below).
- ❑ If you need extra help you should:
  - ❑ Use Khan Academy as a resource to refresh your understanding of the topics. There are mini-units on Khan Academy with practice problems that might be helpful.
  - ❑ Reach out to a friend that might be able to help explain a concept to you - remember, getting help is ok, but getting answers is not - we want you to understand the material in this assignment as you will be using it moving forward this year and for the years to come!!
- ❑ Bring this packet with you on the first day of school.
  - ❑ While we will be looking at the chart to see trends across the class, your grade will be based on **completion** not correct answers.
  - ❑ Please draw a ☆ next to any topic you would like your teacher to review with you or the whole class.

Name: \_\_\_\_\_

**Solution/Reflection Chart**

<b>Topic</b>	<b>Question</b>	<b>My Answer</b>	<b>Correct?</b>	<b>Topics</b>
Fraction Arithmetic	<b>1</b>			<b>Adding/Subtracting Fractions</b>  <b>Multiplying/Dividing Fractions</b>
	<b>2</b>			
	<b>3</b>			
	<b>4</b>			
	<b>5</b>			
	<b>6</b>			
	<b>7</b>			
	<b>8</b>			
	<b>9</b>			
	<b>10</b>			
	<b>11</b>			
	<b>12</b>			
	<b>13</b>			
	<b>14</b>			
	<b>15</b>			
Simplifying Expressions	<b>16</b>			<b>Combining Like Terms</b>
	<b>17</b>			
	<b>18</b>			
	<b>19</b>			
Solving Multi-Step Equations	<b>20</b>			<b>Multi-Step Equations</b>
	<b>21</b>			
	<b>22</b>			
	<b>23</b>			
	<b>24</b>			

Solving Multi-Step Equations (cont.)	<b>25</b>			
	<b>26</b>			
	<b>27</b>			
	<b>28</b>			
	<b>29</b>			
Solving Inequalities	<b>30</b>	<i>&amp; graph</i>		<b>Solving Inequalities</b>
	<b>31</b>	<i>&amp; graph</i>		
	<b>32</b>	<i>&amp; graph</i>		
	<b>33</b>	<i>&amp; graph</i>		
Evaluating Expressions	<b>34</b>			<b>Evaluating Expressions</b>
	<b>35</b>			
	<b>36</b>			
	<b>37</b>			
Slope	<b>38</b>			<b>Slope</b>
	<b>39</b>			
	<b>40</b>			
	<b>41</b>			
	<b>42</b>			
Slope-Intercept Form	<b>43</b>			<b>Slope-Intercept Form</b>
	<b>44</b>			
	<b>45</b>			
Parallel & Perpendicular Lines	<b>46</b>			<b>Parallel/Perpendicular Lines</b>
	<b>47</b>			
Horizontal & Vertical Lines	<b>48</b>			<b>Horizontal/Vertical Lines</b>
	<b>49</b>			

Graphing Lines	50	Graph		Graphing Lines
	51			
	52			
	53			
	54			
	55			
Systems of Equations	56	Graph		Systems of Equations
	57			
	58			
	59			

**REMINDER:** Please draw a ☆ next to any topic you would like your teacher to review with you or the whole class upon returning to school in the fall

**Topic 1: Fraction Arithmetic**

*Leave all values as simplified improper fractions, not as mixed numbers.*

1.  $\frac{1}{4} + \frac{3}{8} + \frac{5}{16}$

2.  $1\frac{1}{7} + 5\frac{2}{5}$

3.  $\frac{7}{8} - \frac{1}{3}$

4.  $4\frac{4}{10} - \frac{3}{5}$

5.  $19 - 9\frac{1}{4}$

6.  $28\frac{3}{8} - 9\frac{3}{4}$

7.  $\frac{3}{8} * \frac{1}{4}$

8.  $\frac{3}{4} * 22$

9.  $4\frac{3}{5} * 4$

10.  $\frac{3}{5} \div \frac{5}{6}$

11.  $\frac{3}{4} \div 22$

12.  $9 \div \frac{2}{3}$

13.  $5\frac{1}{6} \div \frac{1}{3}$

14.  $7\frac{5}{6} \div 1\frac{1}{5}$

15.  $\frac{3}{5} * \frac{4}{9} * \frac{25}{27}$

**Topic 2:** Simplifying Expressions

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

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

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

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

**Topic 3:** Solving Multi-Step Equations

*Show all inverse operations and check your answer!*

20.  $163 - x = -52$

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

22.  $\frac{5}{9}x - 4 = 6$

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

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

$$25. \quad \frac{3}{4}(x + 4) = \frac{2}{3}$$

$$26. \quad \frac{x + 5}{5} = \frac{3}{10}$$

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

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

$$29. \quad 2x + 3(x - 2) = 5$$

#### **Topic 4: Solving Inequalities**

*Solve each inequality and graph your solution on a number line*

$$30. \quad -\frac{2}{3}x > 6$$

$$31. \quad 13 - x \leq 21$$

$$32. \quad 9x + 4 - 10x > -3$$

$$33. \quad 5x - (x - 8) \geq 9 + 3(2x - 3)$$

**Topic 5: Evaluating Expressions**

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

35.  $x^2$  for  $x = -3$

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

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

**Topic 6: Slope**

*Determine the slope of the line for each problem below:*

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

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

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

41. Given the equation  $y = 6$

42. Given the equation  $x = -2$



**Topic 7: Slope Intercept Form**

*Write the equation of each line in slope intercept form ( $y = mx + b$ )*

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

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

45. Passing through the points (2, 6) and (-5, 13)

**Topic 8: Parallel and Perpendicular Lines**

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

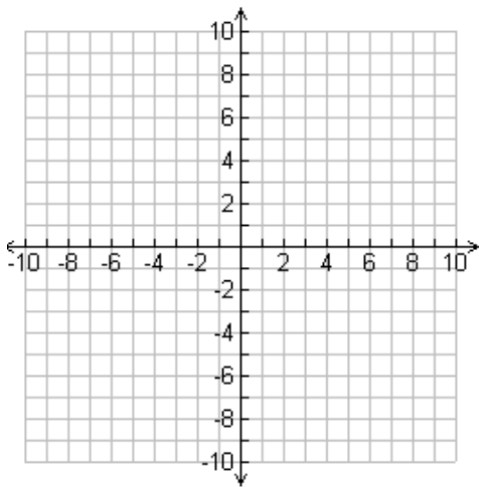
47. Write the equation of the line that is parallel to the line  $5x + 3y = 1$  and contains the point (0, -2)

**Topic 9:** Horizontal and Vertical Lines

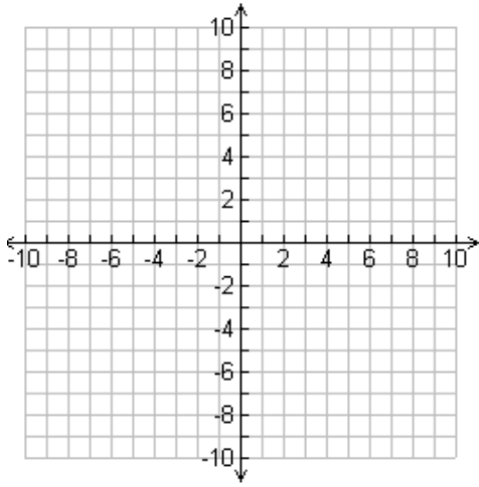
48. Write the equation of the vertical line through the point  $(5, -1)$ .
49. Write the equation of the horizontal line that passes through the point  $(-7, 5)$

**Topic 10:** Graphing Lines

50. Graph the line with the slope of  $-\frac{2}{3}$  and the y-intercept of  $(0, 2)$

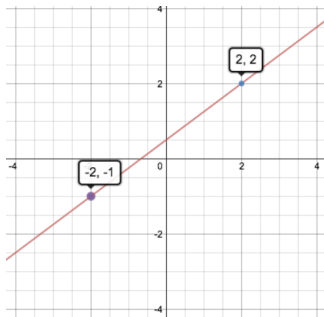


51. Graph the line  $x - 2y = 2$

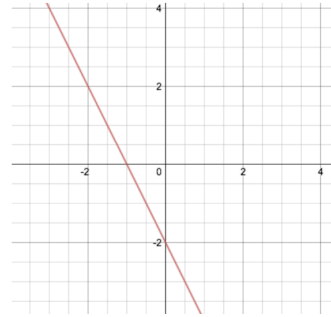


Write the equation in slope intercept form for each graph below:

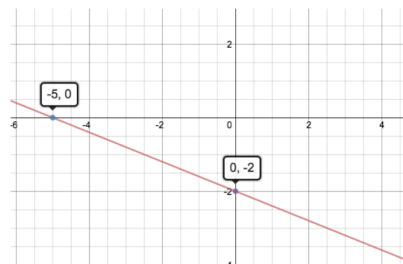
52.



53.



54.

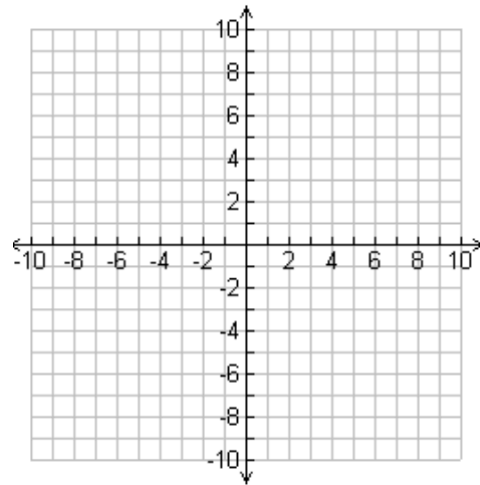


**Topic 11: Systems of Equations**

55. Solve the following system by graphing:

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

$$y - 2x = -2$$



56. Solve by substitution:

$$y - 2x = 0$$

$$3x + 7y = 17$$

57. Solve by elimination

$$3x - 2y = 10$$

$$5x + 3y = 4$$

58. The perimeter of a rectangle is 49m. The width of the rectangle is 2 more than half of the length. Find the length and width.  
*Write a system of equations and solve*

59. 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?

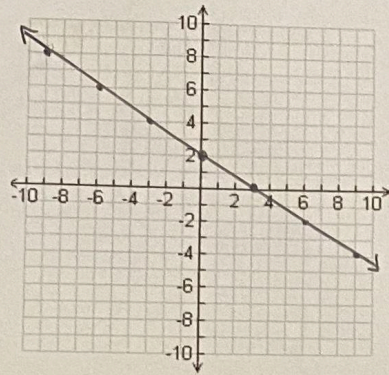
*Write a system of equations and solve*

### Answer Key:

<b>1.</b> $\frac{15}{16}$	<b>21.</b> $x=-7$	<b>41.</b> <b>0</b>
<b>2.</b> $\frac{229}{35}$	<b>22.</b> $x=18$	<b>42.</b> <b>Undefined</b>
<b>3.</b> $\frac{13}{24}$	<b>23.</b> $x = \frac{2}{9}$	<b>43.</b> $y=5x-2$
<b>4.</b> $\frac{19}{5}$	<b>24.</b> $x=-13$	<b>44.</b> $y=-3x+12$
<b>5.</b> $\frac{39}{4}$	<b>25.</b> $x = -\frac{28}{9}$	<b>45.</b> $y=-x+8$
<b>6.</b> $\frac{149}{8}$	<b>26.</b> $x = -\frac{7}{2}$	<b>46.</b> $-\frac{8}{3}$
<b>7.</b> $\frac{3}{32}$	<b>27.</b> $x=23$	<b>47.</b> $5x+3y=-6$ or $y = -\frac{5}{3}x - 2$
<b>8.</b> $\frac{33}{2}$	<b>28.</b> $x=2$	<b>48.</b> $x=5$
<b>9.</b> $\frac{92}{5}$	<b>29.</b> $x = \frac{11}{5}$	<b>49.</b> $y=5$
<b>10.</b> $\frac{18}{25}$	<b>30.</b> $x<-9$	<b>50.</b> <<graph below>>
<b>11.</b> $\frac{3}{88}$	<b>31.</b> $x \geq -8$	<b>51.</b> <<graph below>>
<b>12.</b> $\frac{27}{2}$	<b>32.</b> $x<7$	<b>52.</b> $y = \frac{3}{4}x + \frac{1}{2}$
<b>13.</b> $\frac{31}{2}$	<b>33.</b> $x \leq 4$	<b>53.</b> $y=-2x-2$
<b>14.</b> $\frac{235}{36}$	<b>34.</b> $-\frac{3}{2}$	<b>54.</b> $y = -\frac{2}{5}x - 2$
<b>15.</b> $\frac{20}{81}$	<b>35.</b> <b>9</b>	<b>55.</b> <b>(2,2)</b>
<b>16.</b> $11s+5t$	<b>36.</b> <b>27</b>	<b>56.</b> <b>(1,2)</b>
<b>17.</b> $-12x-18$	<b>37.</b> <b>-5</b>	<b>57.</b> <b>(2,-2)</b>
<b>18.</b> $5x-8y$	<b>38.</b> $-\frac{7}{4}$	<b>58.</b> <b>L=15, W=9.5</b>
<b>19.</b> $6j-m$	<b>39.</b> <b>-2</b>	<b>59.</b> <b>S=70, A=130</b>
<b>20.</b> $x=215$	<b>40.</b> $\frac{1}{2}$	

**Topic 10: Graphing Lines**

50. Graph the line with the slope of  $-\frac{2}{3}$  and the y-intercept of  $(0, 2)$



51. Graph the line  $x - 2y = 2$

