

# Assignment

Name \_\_\_\_\_ Date \_\_\_\_\_

## Time Study Graphs and Solutions of Linear Systems

1. Describe the graph of a linear system with one solution, a linear system with no solutions, and a linear system with infinitely many solutions. Use complete sentences in your answer.

Two window washers are cleaning the windows of a skyscraper. By 11:00 A.M., the first window washer, Wally, has already cleaned 12 windows and cleans at a rate of 4 windows per hour. Wally's partner, Wanda, started work late today. She has only washed 8 windows by 11:00 A.M., but she cleans at a rate of 5 windows per hour.

2. For each worker, write an equation that gives the total number of windows washed  $y$  in terms of the time worked  $x$  in hours since 11:00 A.M.
3. Complete the table of values that shows the number of windows washed by Wally and Wanda for different numbers of hours worked.

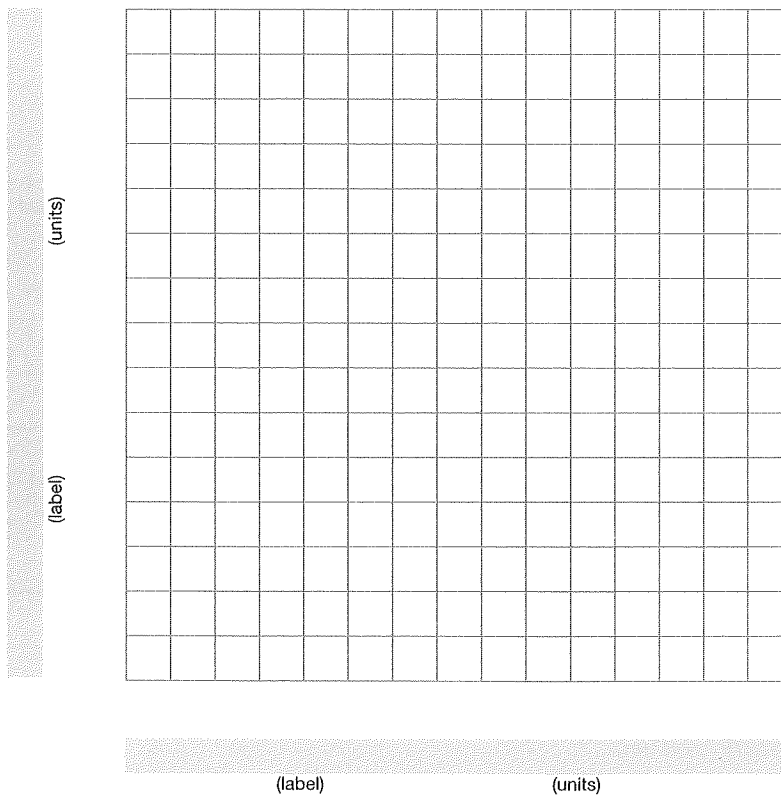
Quantity Name	Time worked since 11:00 A.M.	Windows washed by Wally	Windows washed by Wanda
Unit	hours	windows	windows
Expression	$x$		
	0		
	2		
	5		
	8		
	10		

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4. Write a linear system that shows the total number of windows washed in terms of the time worked since 11:00 A.M. for both washers.

5. Does the linear system in Question 4 have one solution, no solution, or infinitely many solutions? Use complete sentences to justify your answer.
6. Based on the values in the table in Question 3, estimate when Wally and Wanda will have washed the same number of windows. Use complete sentences to justify your estimate.
7. Create a graph of the linear system on the grid below. First, choose your bounds and intervals. Be sure to label your graph clearly.

Variable quantity	Lower bound	Upper bound	Interval
Time worked since 11:00 A.M.			
Windows			



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8. What is the solution of the linear system in this problem situation? Use a complete sentence in your answer.

9. Algebraically verify that the ordered pair in Question 8 is the solution to the system.

10. What does the solution mean in context of this problem situation? Use a complete sentence in your answer.

**Determine whether the graphs of each pair of equations are parallel, perpendicular, or neither. Show all your work and use a complete sentence to explain your reasoning.**

11.  $y = 2x - 5$  and  $y = -2x + 4$

12.  $y = 3x + 6$  and  $y = -3(-1 - x)$

13.  $y = 0.2x + 9$  and  $y = -5x - 7$

