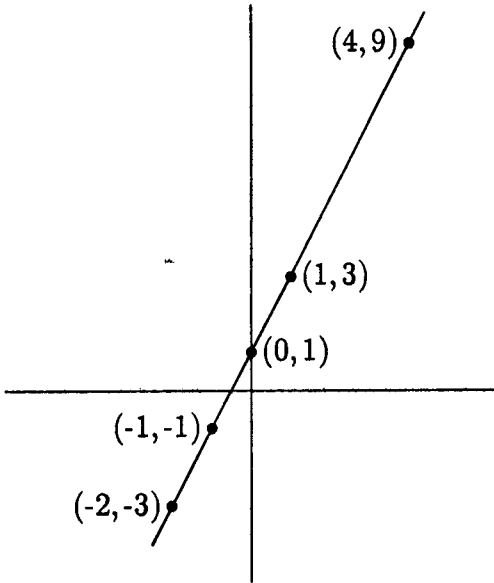


**P-9** The graph shows the line  $y = 2x + 1$  with SOME of the points labeled.



1. Fill in the blank or circle the correct word: The slope is 2 and the  $y$ -intercept is (0, 1). Since the slope is

positive negative ,

each time you move one to the right from a point on the line, you go

up down

2 to get to another point on the line.

Using the above graph of the line  $y = 2x + 1$ , complete the following table.

	From:	the $y$ -value changes by:	the $x$ -value changes by:	$\frac{\text{change in } y}{\text{change in } x}$
2.	(0,1) to (1,3)	<u>2</u>	<u>1</u>	$\frac{2}{1} = 2$
3.	(-2,-3) to (0,1)	<u>4</u>	<u>2</u>	$\frac{4}{2} = 2$
4.	(-1,-1) to (4,9)	<u>10</u>	<u>5</u>	$\frac{10}{5} = 2$
5.	(1,3) to (-2,-3)	<u>-6</u>	<u>-3</u>	$\frac{-6}{-3} = 2$
6.	(4,9) to (0,1)	<u>-8</u>	<u>-4</u>	$\frac{-8}{-4} = 2$

7. Is every value in your last column equal to the slope? yes

Let  $(x_1, y_1)$  be the coordinates of the *first point* (that is, the “first  $x$ ” and the “first  $y$ ”) and let  $(x_2, y_2)$  be the coordinates of the *second point*. Find an algebraic expression for each of the following quantities.

8. The change in  $y$  from the first point to the second point.  $y_2 - y_1$

9. The change in  $x$  from the first point to the second point.  $x_2 - x_1$

10. The slope  $m$  of the line passing through the first and the second points.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$