

Silo and Jenny conducted an experiment in which Jenny walked at a constant rate. Unfortunately, Silo only recorded the data shown in this table.

Elapsed Time	Distance
2	4.6
6	2.8

PART ONE

1. Use the data in the table to find the slope of the line that represents this situation.
2. Use the slope and the point (2 , 4.6) to find the y-intercept.
3. Write the slope-intercept form of the equation that describes the line. Enter this equation into y_1 on your calculator.

PART TWO – ANOTHER METHOD

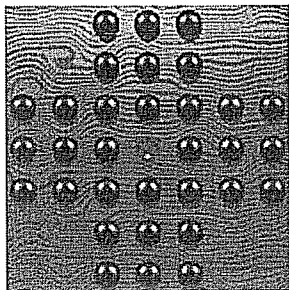
You can use the two points and the slope formula to generate the equation of a line.

$$\text{slope} = \frac{y_1 - y_2}{x_1 - x_2}$$

1. This is the **POINT SLOPE FORM** of the equation of the line. Enter this equation into y_2 on your calculator.
2. Graph both equations. What do you notice?
3. Look at the table of y_1 and y_2 values. What do you notice? What do you think the results mean?

Unit 2 Part 2 Day 4

The photo shows a marble solitaire game. The inner square contains 8 marbles. There are a total of 20 marbles inside the second square. How many total marbles are inside the third square?



1. Continue the pattern and complete the table.
2. Choose two points and find the slope.
3. Write an equation in **point-slope form** for a line that would pass through all the data points in the table.
4. Use your equation to find the number of marbles if there were 10 squares.

Squares from the Center	Total Number of Marbles
1	
2	
3	
4	
5	
6	



Now that you have some practice at writing POINT-SLOPE equations, try using a point-slope equation to fit data.

The table shows how the temperature of a pot of water changed over time as it was heated.

1. Define variables and plot the data on your calculator. Describe any patterns you notice.
2. Choose a pair of points from your data. Find the slope of the line between the two points.
3. Write an equation in POINT-SLOPE form for a line that passes through your two points. Graph the line. Does your equation fit the data?
4. Compare your graph to those of other members of your group. Does one show a line that is a better fit than the others? Explain.

Time (s) x	Temp (°C) y
24	25
36	30
49	35
62	40
76	45
89	50

If you look back at the investigation, you will notice that you found the POINT-SLOPE form of a line even though you only had two points (but not a slope) to start with. This is possible because you can still use the POINT-SLOPE form when you know two points on the line; there's just one additional step. WHAT IS IT?

POINT-SLOPE FORM HOMEWORK

NAME _____

Write an equation in POINT-SLOPE form and SLOPE-INTERCEPT form for a line, given its slope and one point that it passes through.

1. Slope = 3 ; point (- 2 , 5)

2. Slope = -5 ; point (1 , - 4)

3. The table shows postal rates for first class US mail in the year 2004.

a. Make a scatter plot on your calculator of the data. Describe any patterns you notice.

b. Find the slope of the line between any two points in the data. What is the real-world meaning of the slope?

c. Write a linear equation in POINT-SLOPE form that models that data. Graph the equation to check that it fits your data points.

d. Use the equation you wrote in Part c to find the cost of mailing a 10oz letter.

POSTAL RATES	
Weight not Exceeding (oz) x	Cost y
1	0.37
2	0.60
3	0.83
4	1.06
5	1.29

e. What would be the cost of mailing a 3.5 oz letter? A 9.1 oz letter?

f. The equation you found in Part c is useful for modeling this situation. Is the graph of this equation, a continuous line, a correct model for this situation? Why or why not?