

## Lesson #2 Using the TI 84

Name: Carrie Seitz

Grade level(s)/Subject taught: 7<sup>th</sup> Grade Math

Objectives: Students will...

- Write an equation to model a problem
- Solve a system of equations using three methods:
  1. Graphically
  2. Table
  3. Algebraically

- Mathematical Concept or "key idea" that modeling will be used to teach:  
Students use mathematical modeling/ multiple representation to provide a means of presenting, interpreting, communicating, and connecting mathematical information and relationships

- State Standards:

- 7.R.1 Use physical objects, drawings, charts, tables, graphs, symbols, equations, or objects created using technology as representations

- 7.R.2 Explain, describe, and defend mathematical ideas using representations

- 7.R.3 Recognize, compare, and use an array of representational forms

- 7.R.4 Explain how different representations express the same relationship

- 7.A.8 Create algebraic patterns using charts/tables, graphs, equations, and expressions

Materials:

- Graphing Calculators
- Worksheet

Students will begin class by reviewing the work we did the day before on generating tables, graphs and equations by hand. I will have kept our work on poster board and review the method we used to create the equation and the information we can get by looking at the table and graph. Our focus today will be on what we can say about a situation where we use two equations to represent a situation and how they compare to each other. (10 min)

We will read the problem together on the worksheet about the T-shirts and discuss how to model the problem using equations. I assume the students will struggle here the most. I will guide them through the process of using "shorthand" to put it into symbols. We will discuss why we would use equations to model the situation - what advantages will it afford us. I expect at least a few students to realize from our previous work that we will be comparing them in the context of the problem - how much the T-shirts will cost depending on the number needed. I will ask them why they think it may be important to know this information. (15 min)

Students will be given a calculator and asked to work with a partner to complete the worksheet. I will guide them through the process of entering the equations into the calculator and displaying the graph and table using the overhead monitor. I will keep the window in standard form so students will have to figure out that they will need to change the window setting. That will set up an opportunity to discuss scales on the axis in the context of the problem. I will wander around and answer questions as they come up. (30 min).

I will collect the worksheets and grade them according to the rubric. The following class we will go over the worksheet and address the problems students had in this activity. I will focus on the interpretation of the graph. I will reinforce the use of the table to solve the system of equations as well as solving it by hand.

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

The students in Ms. Changs class decided to order T-shirts that advertise a walkathon. Miguel obtains two different quotes for the cost of the shirts.

*One Size Fits All* charges \$4 per shirt.

*You Draw It / We Print It* charges \$75 down plus \$3 per shirt.

1. For each company, write an equation Miguel could use to calculate the cost of any number of shirts.

*One Size Fits All:* \_\_\_\_\_

*You Draw It / We Print It:* \_\_\_\_\_

2. On the same set of axis, sketch both equations. (label the axis!)



3. Generate tables for both equations below

# of shirts	<i>One Size Fits All</i>	<i>You Draw It / We Print It</i>
0		
25		
50		
75		
100		

4. Which company should the students buy shirts from? What factors influenced your decision?

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5. For what number of T-shirts is the cost the same for both companies? Explain how you got your answer.

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## Grading Rubric

<ul style="list-style-type: none"><li>• Worksheet complete</li><li>• Values in table correct</li><li>• Graph has reasonable scale</li><li>• Explanations are reasonable</li></ul>	5 pts
<ul style="list-style-type: none"><li>• Worksheet complete</li><li>• Values in table correct</li><li>• Graph has reasonable scale</li><li>• Explanations not valid</li></ul>	4pts
<ul style="list-style-type: none"><li>• Worksheet semi-complete</li><li>• Values in table correct</li><li>• Graph does not have reasonable scale</li><li>• Explanations not valid</li></ul>	3pts
<ul style="list-style-type: none"><li>• Worksheet semi-complete</li><li>• Values in table correct</li><li>• Graph does not have reasonable scale</li><li>• Explanations missing</li></ul>	2pts
<ul style="list-style-type: none"><li>• Worksheet semi complete</li><li>• Values not correct in table</li><li>• Graph does not have reasonable scale</li><li>• Explanations missing</li></ul>	1pt
<ul style="list-style-type: none"><li>• Worksheet not complete</li></ul>	0

Comments:

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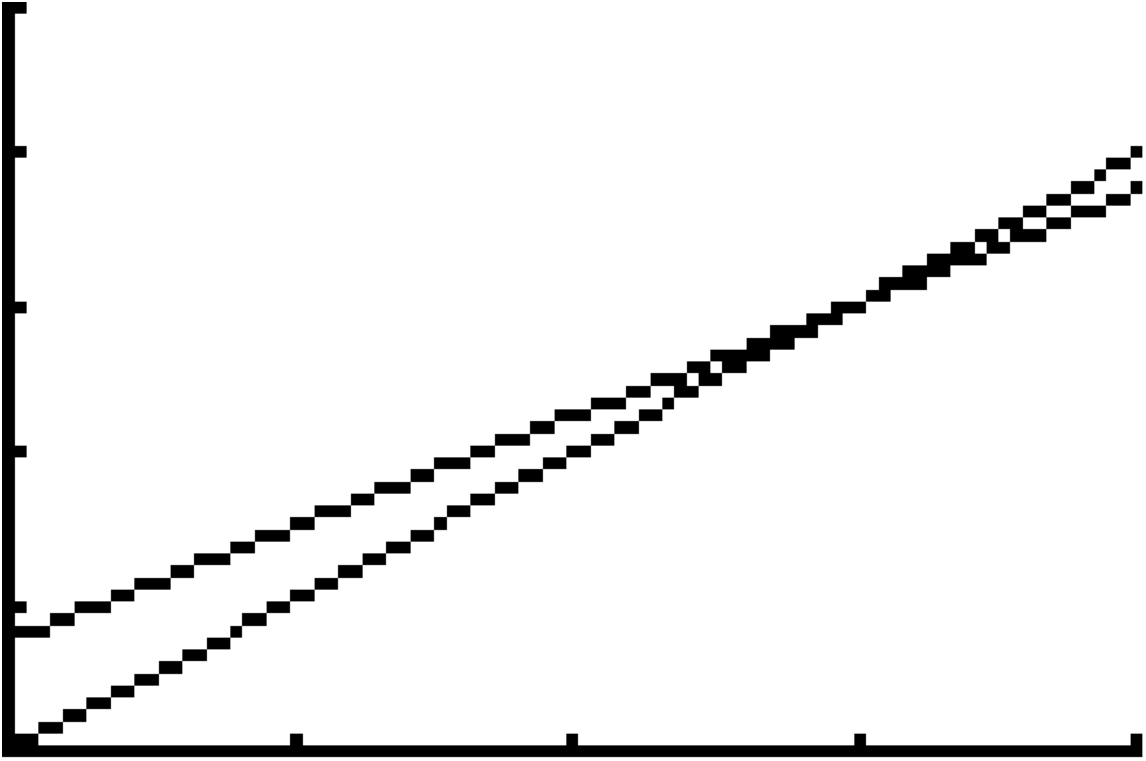
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X	Y <sub>1</sub>	Y <sub>2</sub>
1	1.5	2.5
2	3	5
3	4.5	7.5
4	6	10
5	7.5	12.5
6	9	15
7	10.5	17.5
8	12	20
9	13.5	22.5
10	15	25

$$X = 0$$