



Name: _____ Date: _____

Math in Restaurants: Take the Challenge
Student Handout

Sue Torres, chef and owner of Sueños restaurant in New York City, is trying to determine what price she should charge for guacamole, one of her restaurant's most popular dishes. This is a little tricky, since the cost of avocados, the main ingredient, changes frequently. Your challenge is to help Sue by doing the following:

- A. Look for a trend in the costs of avocados over the past three years and predict the average cost of avocados for the next year.
- B. Recommend a menu price for guacamole.

(This activity can also be completed online. Go to www.getthemath.org, click on "The Challenges," then scroll down and click on "Math in Restaurants: Take the Challenge.")

A. LOOK FOR A TREND IN AVOCADO PRICES AND PREDICT THE AVERAGE COST FOR THE NEXT FOURTEEN MONTHS:

1. Identify what you already know. Look at the graph and chart (on the last two pages of this handout) for information.

- The title of the graph or chart: _____
- The two sets of data displayed on each axis of the graph are:

- The number of avocados in a case is: _____.

2. **Plan it out.** What is the relationship between the cost of a case of avocados and time (in months)? Try estimating a trend line, if it is somewhat linear. Describe the strategy you plan to use to find a line of best fit.
3. **Solve your problem** in the space below and on the attached graph and chart, as needed. Show all your steps. You can use the graph to find your line of best fit and the chart to record additional values for the next 14 months.
- *Use a strategy for finding the line of best fit.*
 - *Once you have identified the line of best fit, calculate the equation of the line.*
 - *Make a prediction for the average cost of avocados for next year.*

Your prediction:

The average cost of **one case** of avocados in the next 14 months will be: _____

The average cost of **ONE** avocado in the next 14 months will be: _____

Explain your reasoning:

Is your line of fit a good representation of the data? If not, try finding another line that better fits the data. If so, explain why your line is a good representation of the data.

B. RECOMMEND A MENU PRICE:

1. **Identify what you know.** Use Sue's Rule of Thumb for menu pricing:

$$\frac{\text{Average cost of one avocado}}{\text{(for the next 14 months)}} + \frac{\$0.40}{\text{additional ingredients}} = \frac{\text{total cost of ingredients}}{\text{total cost of ingredients}}$$

Total cost of ingredients $\times 4 \approx$ Menu price for guacamole *

*Round your answer to the nearest dollar or half-dollar.

2. **Plan it out.** Set up your problem.

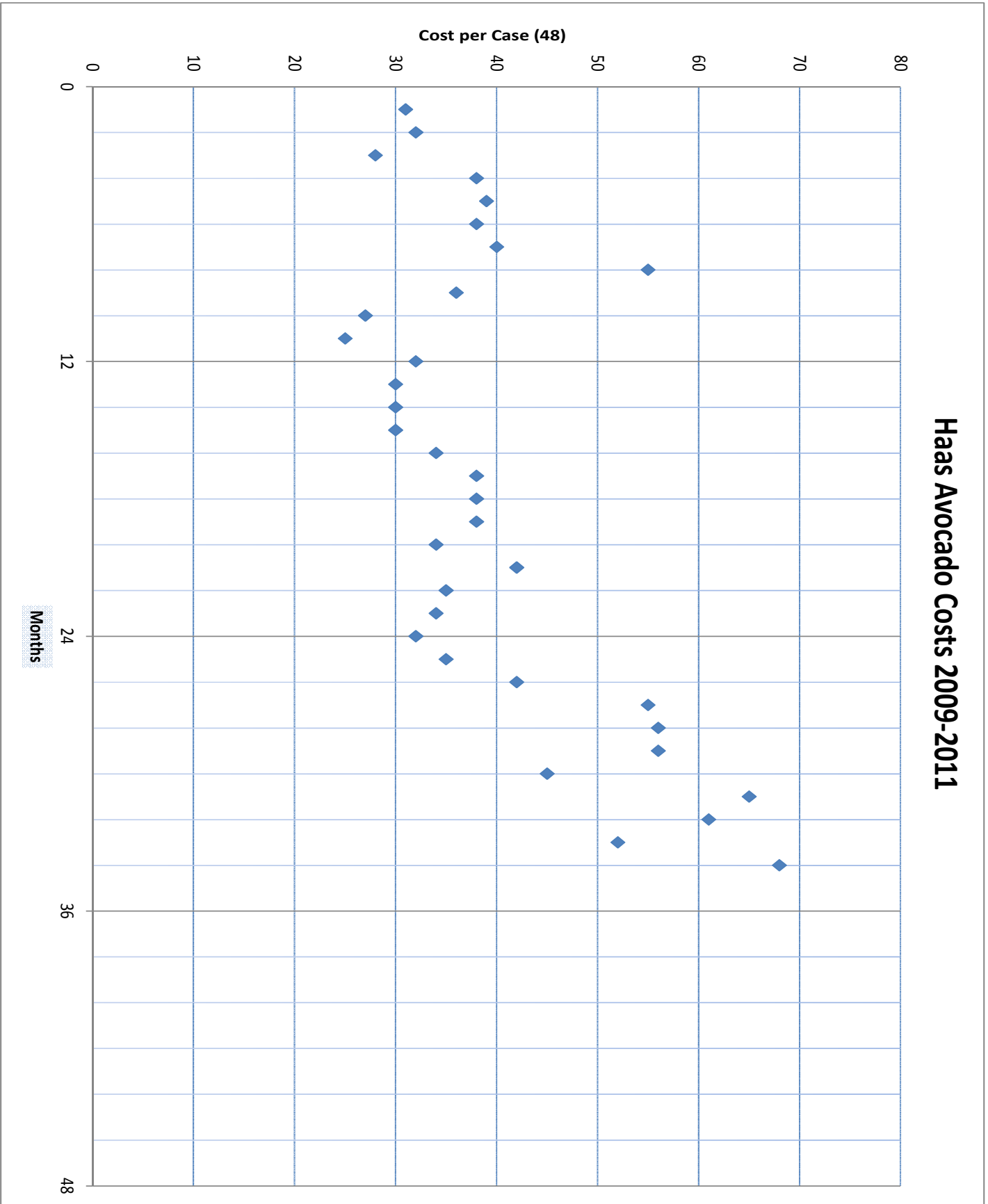
3. **Solve your problem.** Show all your steps.

Your solution: (Round your answer to the nearest dollar or half-dollar.)

My recommended menu price for guacamole next year is: _____

4. Imagine that you now have to recommend a menu price for another dish for next year, based on the cost of the main ingredient over the past few years and Sue's Rule of Thumb. If you were going to email Chef Sue Torres to explain your strategy for determining the price, what would you tell her?

Haas Avocado Costs 2009-2011



Haas Avocado Costs 2009-2011

2009			2010			2011			2012		
MONTH		PRICE	MONTH		PRICE	MONTH		PRICE	MONTH		PRICE
Jan	1	31	Jan	13	30	Jan	25	35	Jan	37	
Feb	2	32	Feb	14	30	Feb	26	42	Feb	38	
Mar	3	28	Mar	15	30	Mar	27	55	Mar	39	
April	4	38	April	16	34	April	28	56	April	40	
May	5	39	May	17	38	May	29	56	May	41	
June	6	38	June	18	38	June	30	45	June	42	
July	7	40	July	19	38	July	31	65	July	43	
Aug	8	55	Aug	20	34	Aug	32	61	Aug	44	
Sept	9	36	Sept	21	42	Sept	33	52	Sept	45	
Oct	10	27	Oct	22	35	Oct	34	68	Oct	46	
Nov	11	25	Nov	23	34	Nov	35		Nov	47	
Dec	12	32	Dec	24	32	Dec	36		Dec	48	

This chart shows the average cost of one case of Haas avocados each month from 2009-2011. (Data is from USDA Fruit and Vegetable Market News.) Origin of avocados: Mexico; Shipped to: New York; Quantity: 48 Avocados per case.