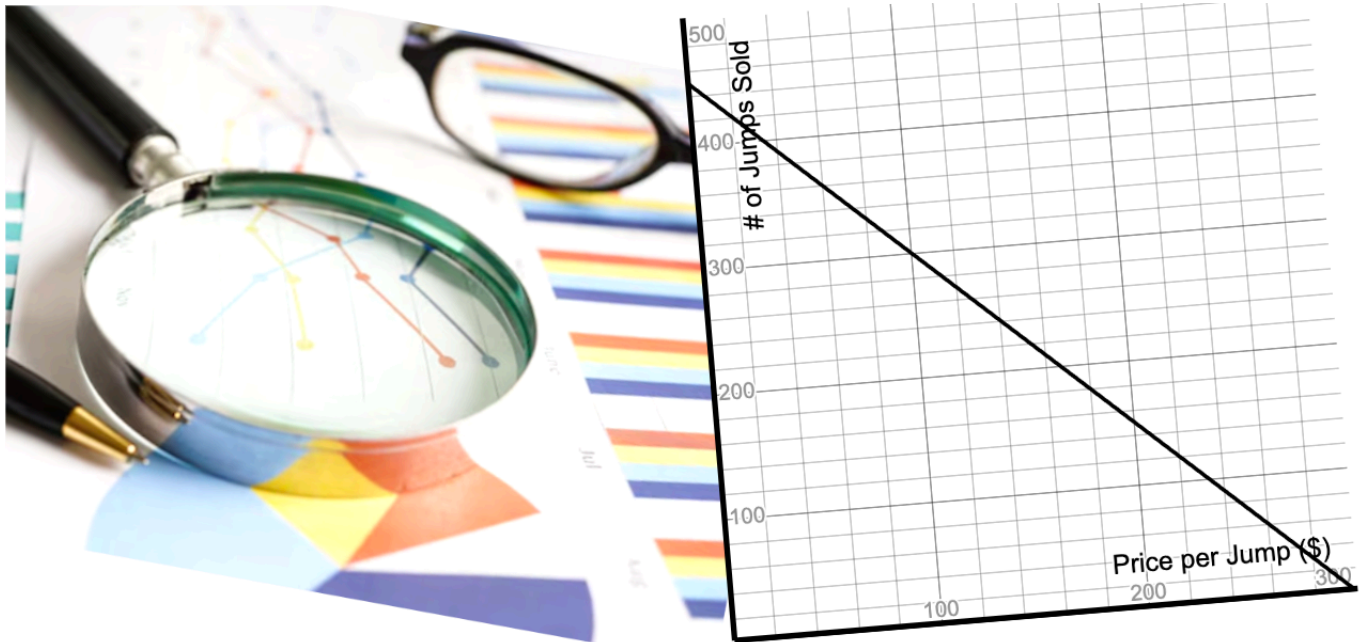


# PREDICTING THE PRICE

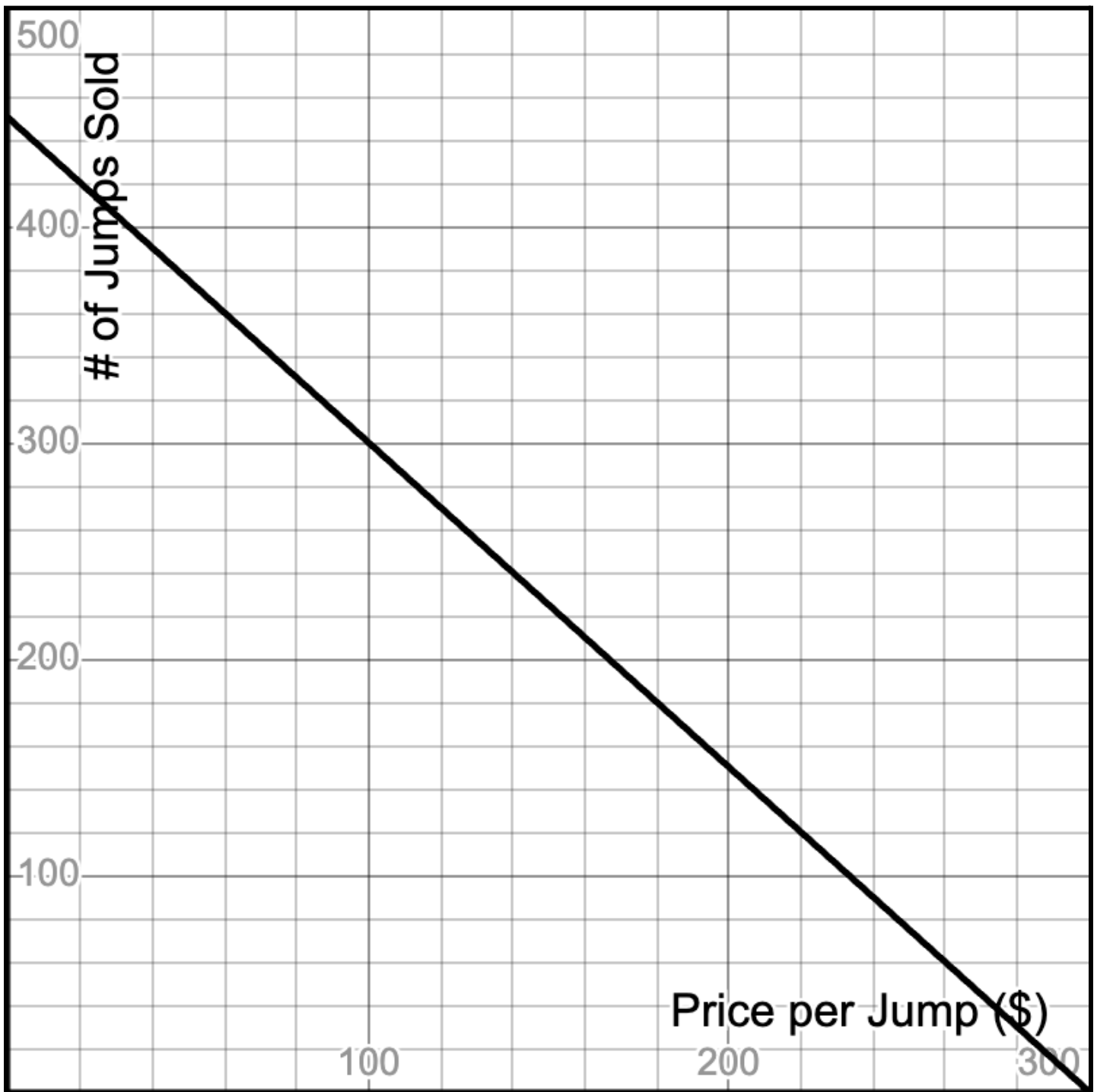


The owners of Bridge Bungees have done some market research in order to make a good decision about how much they charge for a single jump. The graph provided shows some data they have collected. In particular, it shows the number of jumpers they get each month ( $y$ ) based on how much they charge for a jump ( $x$ ).

- Use the graph to complete a table like this.

<b>Price per Jump (\$)</b>	40	80	120	160	200	240	280	320	360
<b>Jumps Sold (monthly)</b>									

- Having these representations can help us analyze the monthly income for the company!
  - If Bridge Bungees charges \$40 per jump, how many jumps would they sell in a month? How much income would they make from jump sales that month?
  - If Bridge Bungees charges \$80 per jump, how many jumps would they sell in a month? How much income would they make from jump sales that month?
  - Continue this analysis until you think you know the jump price that would result in the greatest monthly income for Bridge Bungees.
- The owners of Bridge Bungees have suggested that the rule  $\# \text{ of customers} = 450 - \text{price}$  can be used to describe this relationship. If you agree, explain why. If you disagree, propose a rule that better describes the relationship.
- (+) This type of business analysis can get complicated, which is why many companies use spreadsheets to organize and analyze. (Template: <https://tinyurl.com/MtMpredicting>)
  - Use your rule from Question 2 to enter a formula in cell B4. For example, if you thought the rule was  $\# \text{ of customers} = 450 - \text{price}$ , you would enter **= 450 - B3**.
  - Enter formulas in all of the other darker colored cells (B8, B12, D10, and D12). Then, experiment with changing the jump price (B3) until you think you have found the greatest possible profit.



<b>Price per Jump (\$)</b>	40	80	120	160	200	240	280	320
<b>Jumps Sold (monthly)</b>								

We think the **RULE** ... .. describes the relationship **because** ...

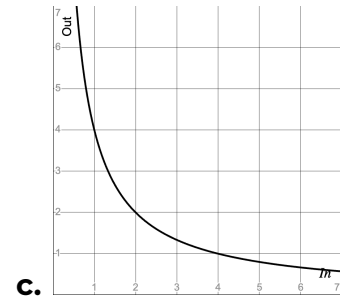
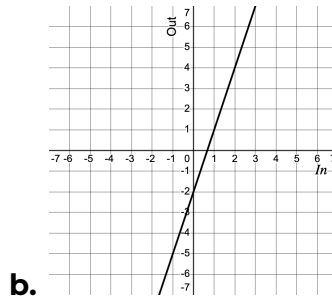
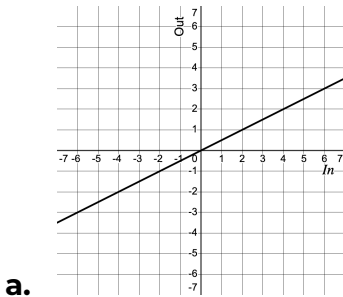
# ON YOUR OWN

## Predicting the Price

Can I explain how rules, tables, and graphs are connected?

When given only one of these representations, can I create and use the others?

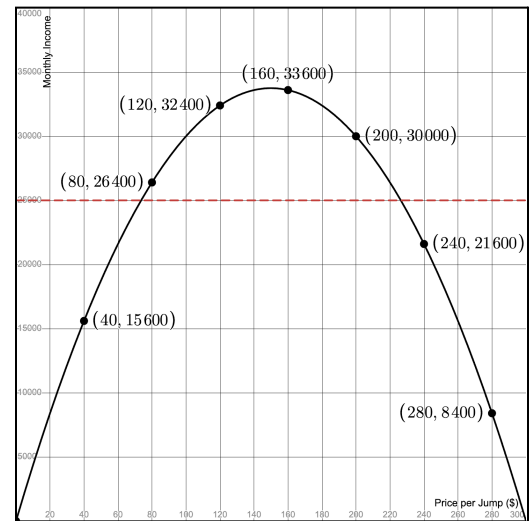
- Below are several graphs. For each one, make an In-Out table from the graph. Then, write a rule for each table that tells what to do with the *In* to get the *Out*.



- In *Predicting the Price*, you saw that the monthly income of Bridge Bungees changes based on the price they charge per jump.

But companies don't (or shouldn't) *only* care about their own profit. They might also care about things like: making sure their product is affordable for all types of people, making sure their employees are paid a living wage, etc. Here you will think about how those other values might impact their decisions about jump price.

Price per Jump	40	80	120	160	200	240	<b>p</b>
# of Monthly Customers	390	330	270	210	150	90	<b>450 - 1.5p</b>
Monthly Income	15.6k	26.4k	32.4k	33.6k	30k	21.6k	<b>p(450 - 1.5p)</b>



Assume Bridge Bungees has monthly expenses of \$25,000 (represented by the horizontal dashed line on the graph). Suppose the company still wants to make a monthly profit, but also wants to make sure that lots of people can afford to experience their bungee jumps.

- At \$40 per jump, how many monthly customers would they get?  
What is their monthly profit at that jump price?
- At \$120 per jump, how many monthly customers would they get?  
What is their monthly profit at that jump price?
- At \$160 per jump, how many monthly customers would they get?  
What is their monthly profit at that jump price?
- What jump price do you think is fair? Why?

- 3.** Bridge Bungees also values their employees and wants to make sure that they are well-paid. Use the spreadsheet template (<https://tinyurl.com/MtMbalanced>) to see how employee pay impacts the company's profit.
- a.** If they charge \$100 per jump and pay their employees \$10/hour, what is their expected monthly profit?
  - b.** If they charge \$200 per jump and pay their employees \$15/hour, what is their expected monthly profit?
  - c.** If they charge \$150 per jump and pay their employees \$27/hour, what is their expected monthly profit?
  - d.** What jump price and hourly pay do you think is fair? Why?