

### Modeling HW 3: Online Sales

The table at right records data from 7 online stores: how much they spent on advertising in a month, and what their sales were that month.

Start up a new Google Sheet, enter these data in (be sure to add the proper column headings!) and create a scatterplot of the data. Once you do, also add the trendline and its equation to your scatterplot!

Amount Spent for Online Advertising	Monthly Sales
\$1700	\$368,000
\$1500	\$340,000
\$2800	\$665,000
\$5000	\$954,000
\$1300	\$331,000
\$2200	\$556,000
\$1300	\$376,000

- (4 points; two for each)** Let's breakdown that equation! Give me both the slope, and the  $y$ -intercept, and tell me what each means in the context of this situation (that is, use phrases like "Dollars spent on online advertising" and "monthly sales dollars").
- (2 points)** Approximately how much in sales can a company expect if they spend \$4000 a month on online advertising?
- (2 points)** if a company makes about \$450,000 in monthly sales, about how much did they spend on online advertising?

I showed this data to a buddy, and he said, "Dude! I just did the math: if you wanna make a **billion** dollars in sales, just spend \$5,831,195 on advertising." I smiled, because, mathematically, he's right – take a look at the graph, if we let the Sales axis go up to \$1,000,000,000 (remember: "one billion" is "a thousand million"). See that circle? That's showing the point (\$5831.195, \$1,000,000), which shows that about \$5.8 million in advertising will yield about \$1 billion in sales:

Monthly Sales vs. Amount Spent for Online Advertising



- (2 points)** As much as I adore my buddy's idea, why is his conclusion not likely statistically valid (even though it's **mathematically** correct)? There's a good footnote from your last lab that might help. 😊