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Group Name: _____

Group Members: _____

Practice Interpreting Slopes and Y-Intercepts

- Suppose a market researcher is interested in studying the relationship between the odometer reading on a used car and its selling price. He collects a random sample of 100 cars and uses technology to create the following regression equation: **$Selling\ Price = 6,500 - 0.0312(\text{miles on odometer})$** .
 - Name the slope and interpret it in the context of the problem. Use a complete sentence please!
 - Name the y-intercept and interpret it in the context of the problem. Does your interpretation make sense? Is 0 a reasonable value for the explanatory variable?
- Given that the explanatory variable, x , is a worker's commute time in minutes and the response variable, y , is the score on a well-being survey. The least squares regression line is: **$Well\ being = -0.0479(\text{commute time}) + 69.0296$** .
 - Name the slope and interpret it in the context of the problem. Use a complete sentence please!
 - Predict the well-being index of a person whose commute time is 30 minutes.
- A researcher wanted to know if cola consumption is associated with lower bone mineral density in women. The least squares regression line treating cola consumption as the explanatory variable (in number of colas per week) is: **$Bone\ density = -0.0029(\text{cola consumption}) + 0.8861$** where bone mineral density is measured in grams per square centimeter.
 - Name the slope and interpret it in the context of the problem. Use a complete sentence please!
 - Name the intercept and interpret it in the context of the problem. Does your interpretation make sense? Is 0 a reasonable value for the explanatory variable?
 - Predict the bone mineral density of a woman who consumes four colas a week.

4. A researcher collected data representing the number of days absent, x , and the final grade, y , for a sample of college students in a general education course at a large state university. The regression equation is:

$$\text{Final grade} = -2.8273(\text{number of absences}) + 88.7327.$$

- a) Name the slope and interpret it in the context of the problem. Use a complete sentence please!
- b) Name the intercept and interpret it in the context of the problem. Does your interpretation make sense? Is 0 a reasonable value for the explanatory variable?
- c) Predict the final grade for a student who misses five classes.

5. A researcher studied the relationship between the total number of touchdowns, x , made by top paid National Football League (NFL) quarterbacks and their salaries, y . The regression equation is:

$$\text{Salary} = 4,393,649.84 + 320,510.26(\text{number of touchdowns}).$$

- a) Name the slope and interpret it in the context of the problem. Use a complete sentence please!
- b) Name the intercept and interpret it in the context of the problem. Does your interpretation make sense? Is 0 a reasonable value for the explanatory variable?
- c) If $r = 0.5954$ and $r^2 = 0.3545$, what can you say about the strength of the association between touchdowns scored and a quarterback's salary? How much of the variation in salary can be explained by the number of touchdowns scored?