Name: _____ Business Data Analysis
Date: 201-316-VA

In Class Exercise #6: Correlation & Regression

1. **IPhones**

In 2018, Apple sold a whopping 217.72 million IPhones worldwide. Most models are made from steel, have limited color options, and retail for $799 per unit. But if you have $48.5 million to spare, you can buy the Falcon Supernova Pink Diamond IPhone 6, which has a case made of 18-carat gold and has a large pink diamond on its back. There is also a slightly more affordable version of this phone, which retails for $42.5 million dollars; it just comes with an orange diamond instead of a pink one[1].

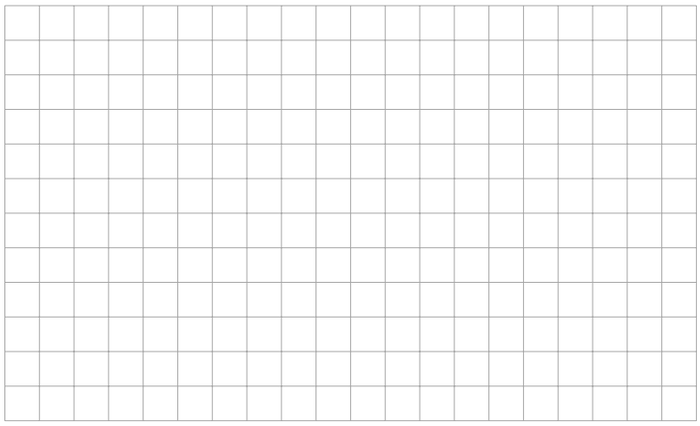
A pawn shop is offering eight IPhones for sale. The table below shows the age of each phone in years (x) and its selling price in dollars (y):

x : **Age of Phone** (in years)	2	2.25	2.5	3	4.25	4.5	5	6
y : **Price** ($)	450	490	390	399	220	299	149	129

Also,

- **Coefficient of determination:** $r^2 = 0.9107$
- **Least-squares line:** $\hat{y} = 648.79 - 90.316x$

(a) Make a scatter plot for the data given in the table above.



(b) Write a sentence (or two) interpreting the intercept of the regression line.

(c) Write a sentence (or two) interpreting the slope.

(d) Find the coefficient of correlation, and interpret the value of r in the context of this problem.

(e) Make a prediction for the sale price of a phone that is 3.5 years old. Comment on the trustworthiness of this estimate.

(f) Make a prediction for the sale price of a phone that is 10 years old. Is this a reliable estimate?

(g) A phone that is 48 month old actually sold for $275. Calculate the residual and interpret it in the context of the problem.

[1] https://economictimes.indiatimes.com/spending-lifestyle/ten-absurdly-expensive-gadgets-money-can-buy/slideshow/44407395.cms