Car Value

Car dealers across North America use the "Blue Book" to help them determine the value of used cars that their customers trade in when purchasing new cars. The book lists on a monthly basis the amount paid at recent used-car auctions and indicates the values according to conditions and optional features, but does not inform the dealers as to how odometer readings affect the trade-in value. In a study to determine whether the odometer reading should be included, ten 5-year-old cars of the same make, model, condition, and options are randomly selected. The trade-in value and mileage are shown below.

Odometer (in 1000's)	Trade-in value (in $100's)
59	37
92	31
61	43
72	39
52	41
67	39
88	35
62	40
95	29
83	33

1. Draw a scatterplot of the data. Which is the predictive variable, which is the response? Why?
2. Describe the relationship between odometer reading and trade-in value.
3. Find the sample regression line for determining how the odometer reading affects the trade-in value of the car. Put the equation in context.
4. Interpret the slope in context.
5. Interpret the y-intercept in context.
6. Draw the regression line on the scatterplot.
7. Predict the trade-in value of a car with 60,000 miles.
8. Measure the strength of the association by calculating the correlation coefficient.
9. Calculate R^2. Describe what it means in context.

Home Value

A real estate agent would like to predict the selling price of single-family homes. After careful consideration, she concludes that the variable likely to be most related to selling price is the size of the house. As an experiment, she takes a random sample of 9 recently sold homes and records the selling rice (in 1000's and the size (in 100 ft²). See the table below.

Size (in 100 ft²)	Price (in $1000's)
26	146.9
33.9	402.5
20.5	83.1
32.1	318.4
32.4	371.8
27.5	151.4
29.4	201.2
24.3	141.3
18	66.6

1. Draw a scatterplot of the data. Which is the predictive variable, which is the response? Why?
2. Describe the relationship between house size and price.
3. Find the sample regression line for determining how the size of the house relates to the price. Put the equation in context.
4. Interpret the slope in context.
5. Interpret the y-intercept in context.
6. Draw the regression line on the scatterplot.
7. Predict the price of a 2800 square foot house.
8. Measure the strength of the association by calculating the correlation coefficient.
9. Calculate R^2. Describe what it means in context.