Standard 8.SP.1; 8.SP.2; 8.SP.3 (H)

Problem Solving II

Directions: Read each of the following scenarios, and study the accompanying tables. Then, complete the items that follow.

1. The table below shows the sizes (in square feet) and prices of different houses for sale in a city.

Housing Costs

Square feet	500	750	750	1,000	1,000	1,000	1,250	1,250
House price	$155,000	$135,000	$175,000	$150,000	$175,000	$215,000	$125,000	$160,000
Square feet	1,500	1,500	1,750	1,750	2,000	2,000	2,250	2,500
House price	$170,000	$215,000	$205,000	$275,000	$185,000	$250,000	$225,000	$300,000

a. Use the information in the table above to create a scatter plot on a sheet of graph paper. The scatter plot should include a title, numbers, data points, labels, and other important information.

b. Explain whether the data sets show an association or no association, and determine whether any association is positive or negative and linear or nonlinear.

_____

_____

c. If the data sets show a linear association, draw a linear model on your scatter plot to represent the relationship between the two data sets.

d. Write an equation to represent the linear model. _____

e. What is the expected price of a house that is 1,800 square feet? _____

f. What is the expected size (in square feet) of a house that costs $180,000?

_____

g. Explain the meaning of the slope and *y*-intercept in this problem.

_____

_____

_____

continue to next page

2. The table below shows the number of fire stations and average response times for different cities.

Firefighters' Response Times

Number of Fire Stations	2	4	6	6	7	10	11	13	14	16	18	18
Average Response Time (in minutes and seconds)	9:30	6:40	8:00	5:00	6:00	4:30	7:00	5:30	3:30	6:00	4:00	1:30

a. Use the information in the table above to create a scatter plot on a sheet of graph paper. The scatter plot should include a title, numbers, data points, labels, and other important information.

b. Explain whether the data sets show an association or no association, and determine whether any association is positive or negative and linear or nonlinear.

_____

_____

c. If the data sets show a linear association, draw a linear model on your scatter plot to represent the relationship between the two data sets.

d. Write an equation to represent the linear model. _____

e. What is the expected average response time for a city with 8 fire stations?

_____

f. What is the expected number of fire stations in a city with an average response time of 4 minutes? _____

g. Explain the meaning of the slope and *y*-intercept in this problem.

_____

_____

_____