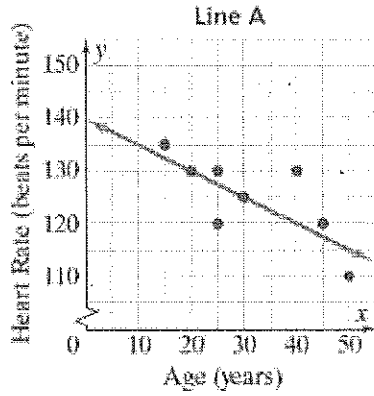
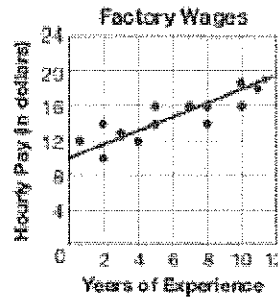


8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

Using the line of best fit below, what would you expect the heart rate of a 35 year old to be?



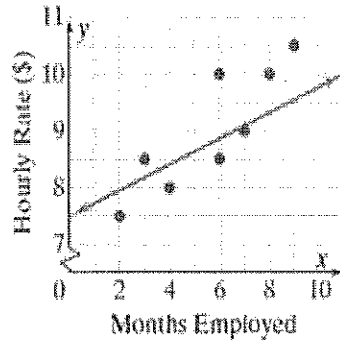
- A. 130
- B. 125
- C. 122
- D. 120



Which of the following statements best describes the meaning of the y-intercept of the line of best fit in the scatter plot?

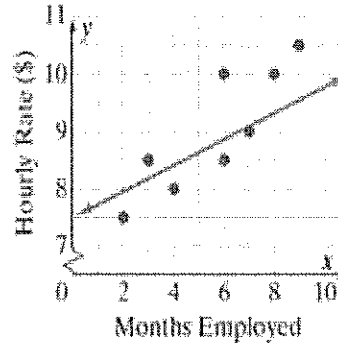
- A. A factory employee's hourly wage increases by about \$0.80 for every additional year of experience.
- B. A factory employee with no experience will start with an hourly wage of about \$10.
- C. A factory employee with more than 10 years of experience will have an hourly wage of more than \$18.
- D. The maximum hourly wage at the factory is \$24.

What does the y intercept represent in the graph below?



- A. The number of months the average employee has worked for the company.
- B. The starting number of hours an employee gets each week.
- C. The starting hourly rate of an employee.
- D. The average hourly rate of an employee.

If Sam has been working at this company for 7 months, how much would you expect him to make per hour?



- A. \$8.50
- B. \$10.25
- C. \$8.25
- D. \$9.10

A researcher collected data on monthly rental charges for commercial properties. Using the data points, the researcher estimated that the equation of the line of best fit is $y=3.75x+250$, where x is the area in square feet of the rented property and y is the monthly rent in dollars.

Part A: Explain how the researcher could have estimated an equation for a line of best fit.

The researcher could have estimated the equation for the line of best fit by drawing a line that fits the data and then determining the slope and y-intercept of the line.

Part B: What is the slope of the line of best fit? Explain what the slope represents in this situation.

The slope is 3.75, which represents the amount of money, \$3.75, that a tenant is paying per square foot of the rental property.

Part C: One of the commercial properties has a monthly rent of \$2,500. Substitute this amount in the line of best fit equation and then solve. Explain what your solution represents.

The commercial property is 600 ft².

$$\begin{aligned} 2500 &= 3.75x + 250 \\ -250 & \quad -250 \\ \hline 2250 &= 3.75x \\ \frac{2250}{3.75} &= \frac{3.75x}{3.75} \\ 600 &= x \end{aligned}$$

8.SP.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.

Rudy surveyed 80 people about whether they prefer blueberry or cherry pie and if they like ice cream with their pie. The results are shown in the table below.

Pie and Ice-Cream Preferences

	Blueberry Pie	Cherry Pie
With Ice Cream	29	24
Without Ice Cream	15	12

What conclusion can be made based on the results?

- A. About 1/3 prefer pie without ice cream.
- B. There are twice as many people who prefer blueberry pie to cherry pie
- C. Fewer prefer cherry pie with ice cream than blueberry pie without ice cream
- D. The ratio of people who prefer blueberry pie to cherry pie is equal to the ratio who prefer pie with ice cream to those who prefer pie without ice cream.

The table below shows the results of a survey of where middle school students like to eat lunch.

FAVORITE PLACE TO EAT LUNCH

	Cafeteria	Outside	Total
Boys	16	21	37
Girls	24	14	38
Total	40	35	75

How many total students were surveyed?

- A. 40
- B. 35
- C. 75
- D. 37

The table below shows the results of a survey of where middle school students like to eat lunch.

FAVORITE PLACE TO EAT LUNCH

	Cafeteria	Outside	Total
Boys	16	21	37
Girls	24	14	38
Total	40	35	75

Which expression represents the relative frequency of the number of boys who prefer to eat in the cafeteria?

- A. $(16/21) \times 100$
- B. $(16/40) \times 100$
- C. $(16/37) \times 100$
- D. $(16/75) \times 100$

A group of 50 students were surveyed. The results are displayed in the table below.

	Owens a Bicycle	Does Not Own a Bicycle
Plays Sports	?	5
Does Not Play Sports	3	18

How many students play sports and own a bicycle?

- A. 26
- B. 5
- C. 24
- D. 18

Plainview High School mailed a survey to the students who graduated the previous year. The survey asked the students whether or not they are enrolled in a college. The results of the students who returned the survey are listed below:

- There are 254 students
- 172 of the students are female
- 48 of the males are enrolled in college
- 124 of the females are enrolled in college.

Part A: Complete the two-way table based on the given data.

Survey Results

	Male	Female	Total
Enrolled in College	48	124	172
Not Enrolled in College	34	48	82
Total	82	172	254

Part B: Calculate the relative frequency of all the females surveyed who have enrolled in college and the relative frequency of all the males surveyed who have enrolled in college. Explain your answers.

Females: $(124/172) \times 100 = 72\%$

Males: $(48/82) \times 100 = 59\%$

Should the average of the two relative frequencies you found be equal to the relative frequency of all the students surveyed who have enrolled in college? Explain why or why not.

No, the average of the two relative frequencies I found will not be equal to the overall average because there is a disproportionate number of females in the survey.