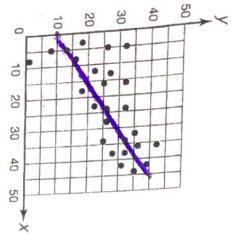**18.** A scatter plot is shown below.

Which best represents the line of best fit and a predicted *y*-value at *x* = 50?

A. $y = \frac{2}{5}x + 20; y = 40$

B. $y = \frac{2}{5}x + 20; y = 20$ ← too low

C. $y = 2x + 10; y = 40$ y-int looks closer to 10 than 20

D. $y = 2x + 10; y = 20$

(handwritten) y-int looks closer to 10 than 20

19. A record-store owner kept track of his sales over the course of one day. He categorized the sales based on whether the sale was a CD or a record, and he recorded the sales of jazz, classical, and blues albums. He calculated conditional frequencies of his sales and made the table below.

	Jazz	Classical	Blues	Total
CD	0.05	0.20	0.13	0.38
Record	0.28	0.02	0.32	0.62
Total	0.33	0.22	0.45	1.00

Which prediction is true regarding the distributions of CD and record sales?

A. If there were total 100 sales in one day, 5 of those would be blues CDs.

B. If there were total 100 sales in one day, 28 of those would be jazz records.

C. If there were total 100 sales in one day, 62 of those would be CDs.

D. If there were total 100 sales in one day, 20 of those would be classical records.

20. A farm agency's staff tracked the amount of rainfall that farms of similar size and crop type experienced during one summer. They also measured that season's crop yield. The staff plotted these findings on the scatter plot below.
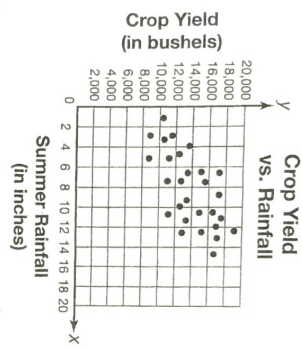
What is most likely true about the relationship between the two variables in the scatter plot?

A. Increased rainfall is strongly correlated with an increase in crop yield.

B. Increased rainfall is not correlated with an increase in crop yield.

C. Decreased rainfall is strongly correlated with an increase in crop yield.

D. Decreased rainfall is weakly correlated with an increase in crop yield.

21. City planners recorded the number of walkers, cyclists, and vehicles that crossed Golden Bridge over the course of four days. The planners recorded their data in the two-way frequency table below.

Golden Bridge Traffic

|	Walkers	Cyclists	Vehicles	Total
Thursday	0	12	215	227
Friday	0	8	186	194
Saturday	1	62	61	124
Sunday	0	76	32	108
Total	1	158	494	653

What is one conclusion that can be made regarding cyclist traffic over Golden Bridge? Base your response on evidence from the table.

(handwritten) more traffic on weekends, less traffic on Thurs/Fri.
more cyclists than walkers but less than vehicles

Unit 4

22. A scatter plot and line of best fit are shown below.
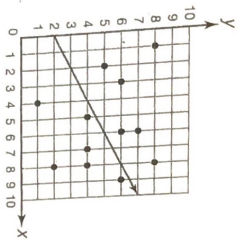
you don't have to do this

A. Calculate the residual for one x-value. Show your work.

x-value: _____

residual: _____

B. Use the concept of residuals to comment on the accuracy of the line of best fit that was drawn.

_____

_____

_____

_____

_____

_____

23. Lin researched the increase in home computers in her hometown in the 1980s. She found records with a table showing how many computers were owned each year during the decade.

Year	Home Computers
1980	12
1981	30
1982	70
1983	112
1984	172
1985	265
1986	401
1987	598
1988	740
1989	1,402

After graphing the data in a scatter plot, she determined the exponential curve of best fit to be $y = 12e^{0.486t}$.

A. In the equation of the exponential curve, what does the constant 12 represent? Give your answer in terms of time and home computers.

It was the initial # of homes with computers

B. In the equation of the exponential curve, what does the coefficient 0.486 represent? Give your answer in terms of time and home computers.

the exponential growth — as time increased the # of home computers grew by a multiplicative factor

24. The census determined the population of nine cities and towns in the same region of the country. These populations are shown in the table below.

Location	Population
Hoover	24,276 ✓
Buxtonville	36,902 ✓
Greenfield	31,588 ✓
Bridgetown	52,103 ✓
Stone Ridge	12,697 ✓
Fremont	41,336 ✓
East Bend	74,015 ✓
Cherry Brook	46,296 ✓
Junction City	612,472

A. What is the median of the populations? Show your work.

(handwritten)
```
12,697
24,276
31,588
36,902
(41,336)
46,296
52,103
74,015
612,472
```

41,336

The census workers determined the average population in these locations to be 103,521 people.

B. If the census workers want a value that best describes the center of the data set so that they may accurately characterize the typical population of a town or city in the region, should they use the mean or the median? Explain your reasoning.

(handwritten) median. The mean is high b/c of Junction City

50

Go On ▶

---

25. An employment agency tracks the length of time that workers stay with one company. When its staff researched two companies, they created the two lists below, representing the number of years that all of the employees have been working at their respective companies:

Vandy's Vacuums: 2, 1, 5, 6, 3, 4, 8, 2, 4, 5, 2, 5, 1, 1, 1, 1, 2, 1, 2, 2, (3), 3, 4, 5, 5, 6, 8

Bart's Brooms: 15, 2, 8, 8, 2, 5, 8, 7, 6, 2, 9, 6, 2, 1, 2, 2, 2, 2, 3, (5), 6, 8, 9, 14, 14, 15

After tabulating the years of employment, the employment agency wants to compile the findings into a chart so the data can be better summarized.

A. Using the data, create a box plot for each company on the graphs provided below.

Vandy's Vacuums
Employment History (in years)

Bart's Brooms
Employment History (in years)

B. Using the box plots you created, compare the distributions of the data from the two companies. Be sure to describe the measures of center and the spread.

(handwritten)

	VV	BB
Min:	1	1
Max:	8	15
Med:	3	5
Q1:	1.5	2
Q3:	5	10.5

VV Has less spread than BB

51

STOP

Unit 4