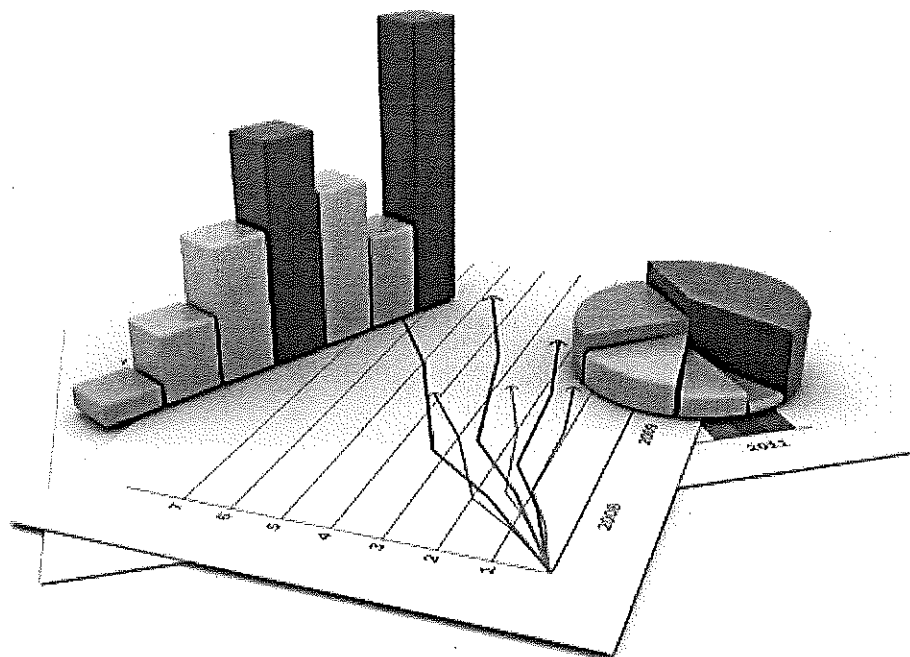


Data Analysis, Statistics, & Probability



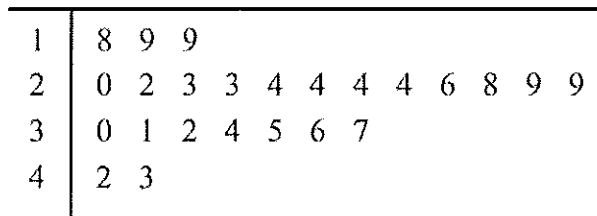
MCAS Practice Problems

Name _____ PD _____

- 1** Sharon took 24 nighttime photographs. The exposure times, in seconds, for her photographs are represented in the stem-and-leaf plot below.

Mark your answer here: 1. (A)(B)(C)(D)

Exposure Times (in seconds)



Key	
3 2	represents 32

What is the median exposure time for her photographs?

- A. 24 seconds
- B. 25 seconds
- C. 27 seconds
- D. 28 seconds

- 2** What is the median of the data set below?

Mark your answer here: 2. (A)(B)(C)(D)

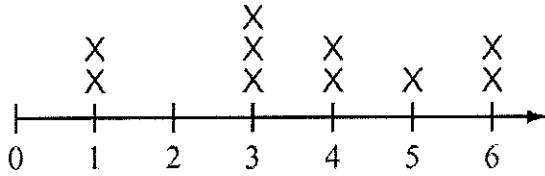
30, 37, 19, 42, 33, 37

- A. 31
- B. 33
- C. 35
- D. 37



- 3** Shantel made the line plot below to show the numbers of points she and the other members of her team scored.

Mark your answer here: 3. (A)(B)(C)(D)



Numbers of Points Scored by Team Members

Exactly three players scored more points than Shantel. Based on the line plot, what is the number of points that Shantel scored?

- A. 2
- B. 3
- C. 4
- D. 5

- 4** The heights, in inches, of the members of a soccer team are listed below.

Mark your answer here: 4. (A)(B)(C)(D)

66, 61, 71, 62, 64, 70, 64, 63, 72, 68

After a new member joined the team, the median height of all the members was 66 inches.

Which of the following could be the height, in inches, of the new member?

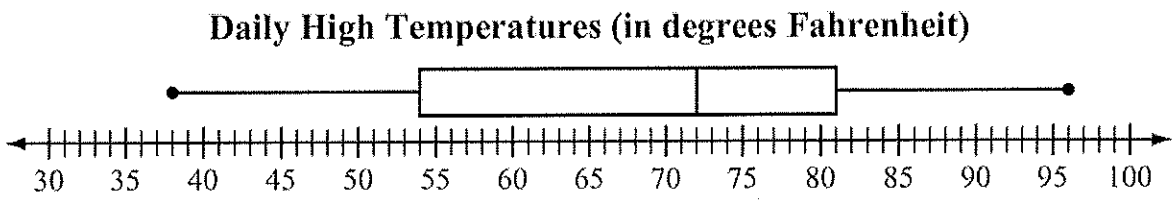
- A. 68
- B. 65
- C. 64
- D. 61



5

Mark your answer here: 5. (A)(B)(C)(D)

The box-and-whisker plot below shows the distribution of the daily high temperatures, in degrees Fahrenheit, in the town of Clifton during the year 2004.



Based on the box-and-whisker plot, in which of the following intervals of temperatures is it most likely that exactly 50% of the daily high temperatures are located?

- A. 38°F to 54°F
- B. 38°F to 81°F
- C. 54°F to 72°F
- D. 54°F to 81°F

6

Cindy is the manager of a restaurant. She recorded the number of people who ate lunch at the restaurant each day for 5 days, as shown in the table below.

Number of People Who Ate Lunch

Day	Number of People
Monday	30
Tuesday	55
Wednesday	60
Thursday	30
Friday	75

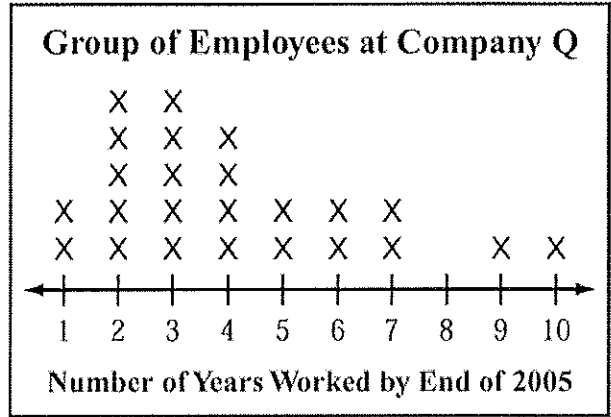
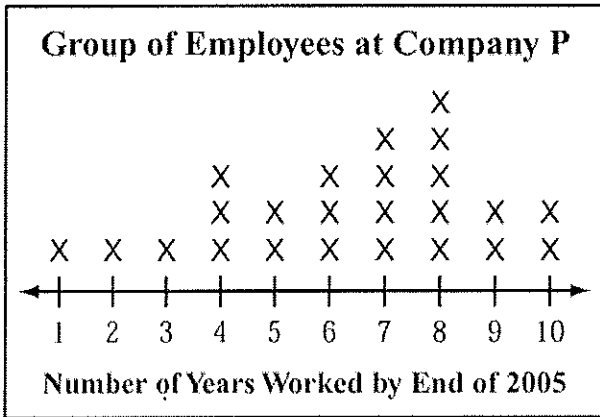
What is the mean number of people per day who ate lunch at the restaurant for those 5 days?

Write your answer here:



Directions: For the problem below, use a separate piece of paper to write your answers. Your teacher will not count anything you write on this page.

- 7** Carla collects employment data. At the end of 2005, she asked a group of 24 employees at Company P how many years each had worked at that company. She asked the same question of a group of 24 employees at Company Q. The line plots below show her results, where each X represents one employee.



- a. For the group of employees at Company P, what are the following measures for the number of years worked by the end of 2005?
- mode
 - median

Show or explain how you got each of your answers.

- b. For the group of employees at Company Q, what are the following measures for the number of years worked by the end of 2005?
- mode
 - median

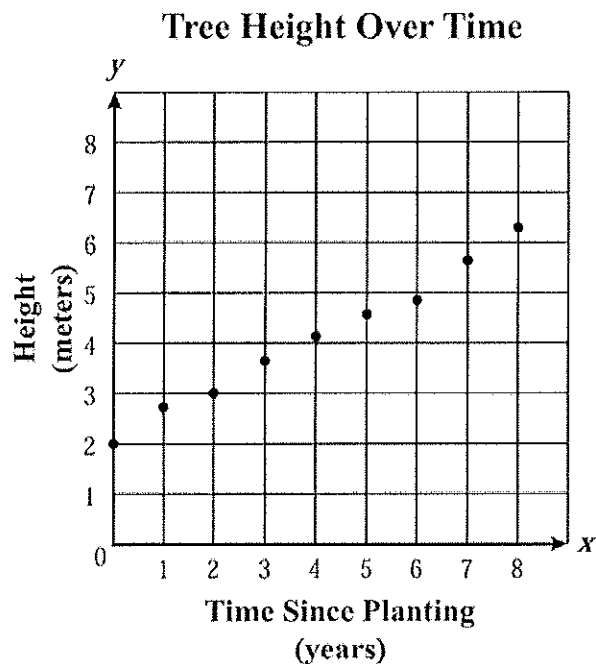
Show or explain how you got each of your answers.

- c. **Without** computing the mean for either group, use the line plots to determine which group of employees has the greater mean number of years worked by the end of 2005. Explain how you got your answer without computing the means.



- 1 Cynthia and her father planted a tree in their front yard 8 years ago. The tree was 2 meters in height when it was planted. The scatterplot below shows how the height of the tree increased each year.

Mark your answer here: 1. (A)(B)(C)(D)



Which of the following most closely approximates the equation of the line of best fit for the data points in the scatterplot?

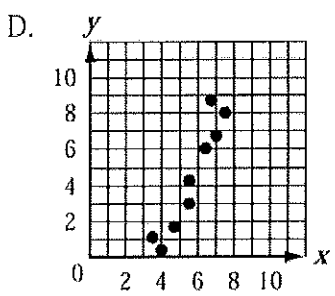
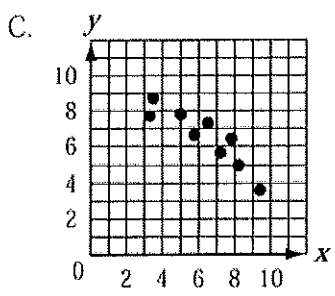
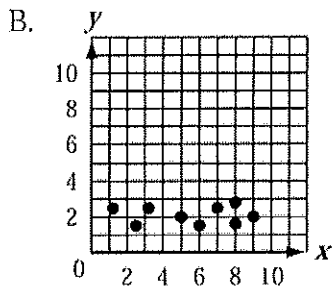
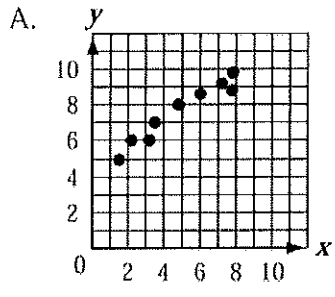
- A. $y = -2x + 2$
- B. $y = 2x + 2$
- C. $y = -\frac{1}{2}x + 2$
- D. $y = \frac{1}{2}x + 2$



2

Beth drew a scatterplot and then correctly drew the line of best fit for her scatterplot. The line of best fit had a slope of 2. Which of the following is most likely Beth's scatterplot?

Mark your answer here: 2. (A)(B)(C)(D)

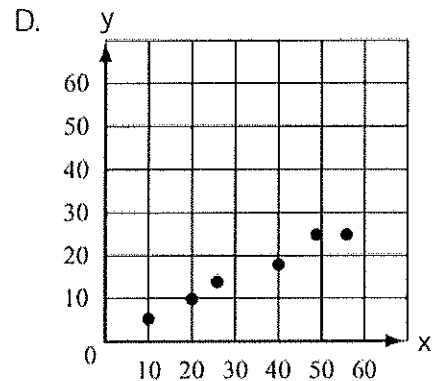
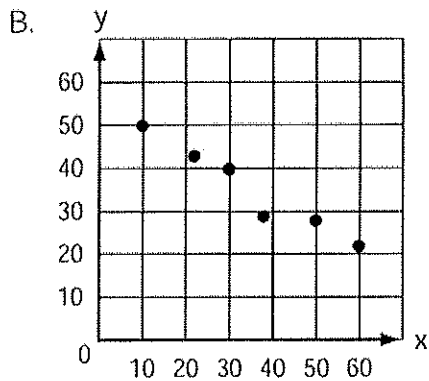
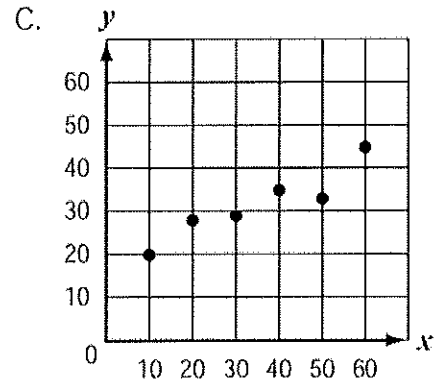
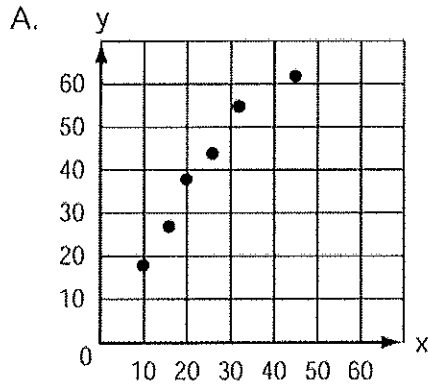


3

Mark your answer here: 3. (A)(B)(C)(D)

Which of the following scatterplots is most likely to have a line of best fit represented by the equation below?

$$y = \frac{1}{2}x$$

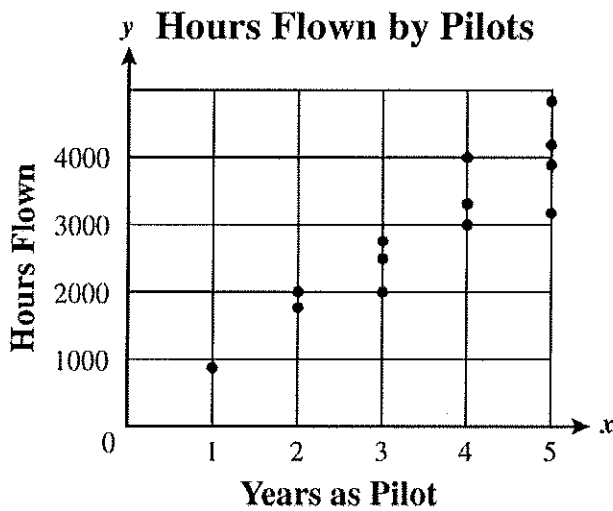


4 Dori asked 13 airplane pilots the following questions:

Mark your answer here: 4. (A)(B)(C)(D)

- “How many years have you been a pilot?”
- “How many hours have you flown?”

The scatterplot below shows the results of her survey.



Which of the following equations best represents the line of best fit for the data in the scatterplot?

- A. $y = 0.001x$
- B. $y = -0.001x$
- C. $y = -850x$
- D. $y = 850x$



Directions: For the problem below, use a separate piece of paper to write your answers. Your teacher will not count anything you write on this page.

- 5** The workers at a company received a bonus this year. The table below shows the numbers of years some of the workers have been employed at the company and the bonus each worker received.

**Years Employed
and Bonuses Received**

Worker's Name	Number of Years Employed	Bonus
Martinez	2	\$250
Leung	4	\$500
Sagafi	1	\$100
Chandler	3	\$200
Parker	6	\$600
Vittel	5	\$450

- a. What is the range of the bonuses in the table? Show or explain how you got your answer.
- b. On the grid in your Student Answer Booklet, make a scatterplot of the data in the table by plotting points with coordinates (x, y) , where x and y are defined as follows:
 - x = number of years a worker has been employed
 - y = bonus (\$) received by that worker

Be sure to label the x -axis and y -axis, indicate the scale on each axis, and provide a title for your scatterplot.
- c. On the grid, draw a line that approximates the line of best fit (trend line) for your scatterplot.
- d. Use your trend line from part (c) to predict the bonus that a worker who has been employed at the company for 10 years should expect to receive. Show or explain how you got your answer.



AREA FORMULAS

square $A = s^2$

rectangle $A = bh$

parallelogram $A = bh$

triangle $A = \frac{1}{2}bh$

trapezoid $A = \frac{1}{2}h(b_1 + b_2)$

circle $A = \pi r^2$

LATERAL SURFACE AREA FORMULAS

right rectangular prism $LA = 2(hw) + 2(lh)$

right circular cylinder $LA = 2\pi rh$

right circular cone $LA = \pi r\ell$
(ℓ = slant height)

right square pyramid $LA = 2s\ell$
(ℓ = slant height)

TOTAL SURFACE AREA FORMULAS

cube $SA = 6s^2$

right rectangular prism $SA = 2(lw) + 2(hw) + 2(lh)$

sphere $SA = 4\pi r^2$

right circular cylinder $SA = 2\pi r^2 + 2\pi rh$

right circular cone $SA = \pi r^2 + \pi r\ell$
(ℓ = slant height)

right square pyramid $SA = s^2 + 2s\ell$
(ℓ = slant height)

VOLUME FORMULAS

cube $V = s^3$
(s = length of an edge)

right rectangular prism $V = lwh$

OR

$V = Bh$
(B = area of a base)

sphere $V = \frac{4}{3}\pi r^3$

right circular cylinder $V = \pi r^2h$

right circular cone $V = \frac{1}{3}\pi r^2h$

right square pyramid $V = \frac{1}{3}s^2h$

CIRCLE FORMULAS

$C = 2\pi r$

$A = \pi r^2$

SPECIAL RIGHT TRIANGLES

