1) Determine the exact median.

$\boxed{median = 7}$

1 2 3 4 5 6 7 8 9 10 11

3, 4, 5, 5, 6, 6, 7, 7 | 7, 7, 9, 9, 9, 10, 10, 11

2) Find the mean absolute deviation of the data set 39, 42, 45, 47, 52

$mean = \dfrac{225}{5} = 45$

Diff from mean
6, 3, 0, 2, 7

$M.A.D = \dfrac{18}{5} = \boxed{3.6}$
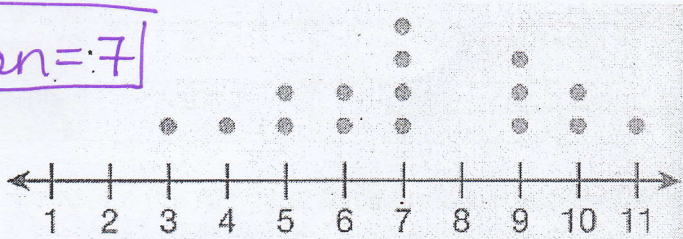
Choose the best answer.

3) Which statement accurately compares the average weight of a puppy from the 2nd litter to the average weight of a puppy from the 1st litter.

Weights of Puppies (in ounces)

1st Litter	3.5, 4, 4, 4.5
2nd Litter	4.5, 5, 7, 7.5

mean = 4
mean = 6

a) The average weight is about the same for both litters.
b) The average weight of a puppy from the 2nd litter is about one-half as great.
(c) The average weight of a puppy from the 2nd litter is about 1.5 times as great.
d) The average weight of a puppy from the 2nd litter is about 2.5 times as great.

4) To compare two shipments, five packages from each shipment were chosen at random and weighed. Which measure or measures of center would be best to use if you wanted to compare the weight of a typical package from each shipment?

Weights of Packages(in pounds)

1st Shipment	2, 4, 6, 8, 10
2nd Shipment	3, 3, 5, 8, 50

mean = 6
med = 6
mean = 14.4
median = 5

(a) Median would be the best measure of center.
b) Mean would be the best measure of center.
c) Median and mean would both be equally good measures of center.
d) Neither the mean nor the median would be a good measure of center.
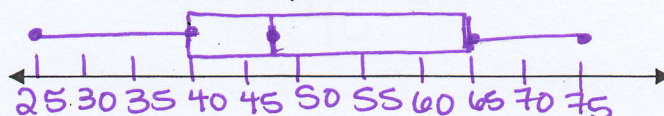
5) Use the data given to find each of the following: 25, 35, 40, 45, 45, | 50, 60, 65, 75, 75
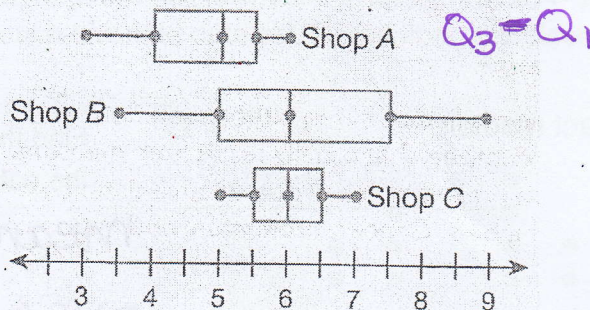
Mean = 51.5   Range = 50

Median = 47.5   Lower Quartile = 40

Mode = 45, 75   Upper Quartile = 65

Then make a box and whisker plot for the data above.

25 30 35 40 45 50 55 60 65 70 75

Sandwich Prices (in dollars)

Shop A $Q_3 = Q_1$

Shop B

Shop C

3   4   5   6   7   8   9

Use for #6—9

6) Identify the median price of a sandwich at each shop.

Shop A: M = __5__

Shop B: M = __6__

Shop C: M = __6__

7) Calculate the IQR of sandwich prices at each shop.

Shop A: IQR = __5.5−4 = 1.5__

Shop B: IQR = __7.5−4 = 3.5__

Shop C: IQR = __6.5−5.5 = 1__

8) If you wanted to buy a sandwich but not spend much money, which shop would you try first? Why?

Shop A, the prices are lower

9) Compare the variability of the sandwich prices at the three shops.

Shop B has the greatest variability and Shop C has the least variability

10) The box plot shows the test scores earned by students in a biology class. Which statement about the test scores is **not** true?

Biology Test Scores

60   65   70   75   80   85   90   95   100
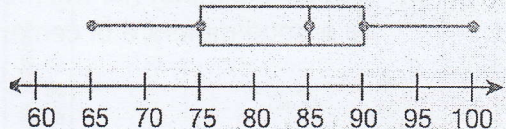
A. The scores ranged from 65 to 100.

B. The median score earned was an 85.

C. 25% of students scored less than 75 points on the test.

D. 50% of students had scores that ranged from 75 to 85 points.

↳ 25%

11) The box plot shows the prices of 20 skirts for sale at a boutique. Which statement about the prices is true?

Skirt Prices (in dollars)

10   20   30   40   50   60   70   80   90   100
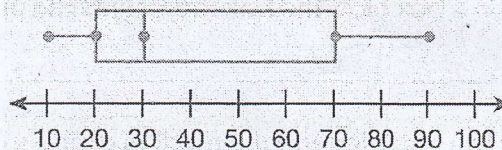
A. The highest-priced skirt costs $100. = $90

B. The median price of a skirt is $70. $30

C. Half the skirts have prices that range from $20 to $70.

D. The prices of the skirts are close to the median and not very variable.

1. A group of U.S. history teachers asked students where they would most like to go for an overnight field trip. The two-way frequency table at left below shows the results.

Results:

	Washington, DC	Williamsburg, VA	Total
Boys	77	28	105
Girls	20	75	95
Total	97	103	200

Marginal & Joint Frequencies:

	Washington, DC	Williamsburg, VA	Total
Boys	0.385	0.14	0.525
Girls	0.10	0.375	0.475
Total	0.485	0.515	1

Complete the marginal & joint relative frequency table above to answer each of the following questions.

$0.385 = 38.5\%$ a) Find the probability that a student is a boy who wants to visit Washington, DC.

$0.515 = 51.5\%$ b) Find the probability that a student wants to visit Williamsburg, VA. $\frac{75}{200}$

$0.525 = 52.5\%$ c) Find the probability that student polled is a boy. $\frac{105}{200}$

$0.2718 = 27.2\%$ d) Given that a student wants to visit Williamsburg, VA, find the probability that he is a boy. $\frac{28}{103}$

$0.2105 = 21.1\%$ e) If you know that the student is a girl, what is the probability the probability she wants to visit Washington, DC $\frac{20}{95}$

2. The two-way frequency table shows the results of a survey in which ninth-grade students were asked which foreign language they most wanted to take next semester.

Results:

	Spanish	French	German	Total
Boys	80	30	10	120
Girls	30	20	30	80
Total	110	50	40	200

Marginal & Joint Frequencies:

	Spanish	French	German	Total
Boys	0.4	0.15	0.05	0.60
Girls	0.15	0.10	0.15	0.40
Total	0.55	0.25	0.20	1

Find each of the following probabilities by using the marginal & joint frequency table.

$0.05 = 5\%$ a) Find the probability that a student is a boy who wants to take German.

$0.10 = 10\%$ b) Find the probability that a student is a girl who wants to take French.

$0.20 = 20\%$ b) Find the probability that a student wants to take German.

$0.25 = 25\%$ c) If you know the student is a boy, what is the probability that he wants to take French. $\frac{30}{120}$

$0.75 = 75\%$ d) Given that a student wants to take German, find the probability that she is a girl. $\frac{30}{40}$

Use strong, weak, positive, negative, or no linear correlation to describe what each correlation coefficient, r, tells you about a bivariate data set. Remember, the closer r is to 1 or -1, the stronger the correlation.

6. $r = 0.1$

no correlation

7. $r = 0.5$

weak positive

8. $r = -0.8$

strong negative

9. Which equation is the best model for the table of values shown below?

x	y
1	3
2	6.5
3	10
4	14
5	17

A. $y = -0.55x + 3.55$

B. $y = 0.55x + 3.55$

C. $y = 3.55x - 0.55$

D. $y = -3.55x - 0.55$

10. Which equation is the best model for the table of values shown below?

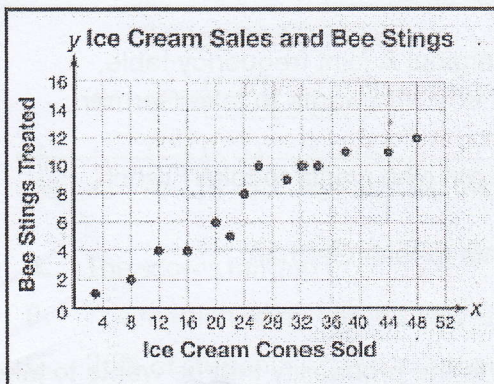| x	y
1	12
2	48
3	190
4	770
5	3,070

A. $y = 4(2.99^{-x})$

B. $y = 4(2.99^{x})$

C. $y = 2.99(4^{-x})$

D. $y = 2.99(4^{x})$

11. The scatter plot below shows data for the number of ice cream cones sold and the number of bee stings treated at a lake resort. Based on this data, answer the following questions:

y Ice Cream Sales and Bee Stings
Bee Stings Treated
16 14 12 10 8 6 4 2 0
4 8 12 16 20 24 28 32 36 40 44 48 52
Ice Cream Cones Sold

a) Is there a correlation between the number of cones sold and the number of bee stings? Explain.

Positive — as # of ice cream sales increases the # of bee stings increases

b) Is there causation between the number of cones sold and the number of bee stings? Explain. (Do the cones sold cause the bee stings?)

# of cones sold does not cause someone to be stung by a bee

c) Which of the following best represents the scatter plot?

$y = 2x + 4$ $y = \frac{1}{2}x$ $y = -x$