Question ID dbf83de2

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: dbf83de2

Five *Eretmochelys imbricata*, a type of sea turtle, each have a nest. The table shows an original data set of the number of eggs that each turtle laid in its nest.

Nest	Number of eggs
A	149
B	144
C	148
D	136
E	139

A sixth nest with 121 eggs is added to create a new data set. Which of the following correctly compares the means of the two data sets?

A. The mean of the original data set is greater than the mean of the new data set.

B. The mean of the original data set is less than the mean of the new data set.

C. The means of both data sets are equal.

D. There is not enough information to compare the means.

ID: dbf83de2 Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that the table shows an original data set of 5 values. It's also given that a sixth value is added to create a new data set. The new data set consists of the 5 values in the original data set and one additional value, 121. Since the additional value, 121, is less than any value in the original data set, the mean of the original data set is greater than the mean of the new data set.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID 3cb6e331

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: 3cb6e331

Data set X: $5, 9, 9, 13$

Data set Y: $5, 9, 9, 13, 27$

The lists give the values in data sets X and Y. Which statement correctly compares the mean of data set X and the mean of data set Y?

A. The mean of data set X is greater than the mean of data set Y.

B. The mean of data set X is less than the mean of data set Y.

C. The means of data set X and data set Y are equal.

D. There is not enough information to compare the means.

ID: 3cb6e331 Answer

Correct Answer: B

Rationale

Choice B is correct. The mean of a data set is the sum of the values in the data set divided by the number of values in the data set. It follows that the mean of data set X is $\frac{5+9+9+13}{4}$, or 9, and the mean of data set Y is $\frac{5+9+9+13+27}{5}$, or 12.6. Since 9 is less than 12.6, the mean of data set X is less than the mean of data set Y.

Alternate approach: Data set Y consists of the 4 values in data set X and one additional value, 27. Since the additional value, 27, is larger than any value in data set X, the mean of data set X is less than the mean of data set Y.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Medium

Question ID bc58a5a3

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: bc58a5a3

$4, 4, 4, 4, 8, 8, 8, 13, 13$

Which frequency table correctly represents the data listed?

A.

Number	Frequency
4	4
8	3
13	2

B.

Number	Frequency
4	4
3	8
2	13

C.

Number	Frequency
4	16
8	24
13	26

D.

Number	Frequency
16	4
24	8
26	13

ID: bc58a5a3 Answer

Correct Answer: A

Rationale

Choice A is correct. A frequency table is a table that lists the data value and shows the number of times the data value occurs. In the data listed, the number 4 occurs four times, the number 8 occurs three times, and the number 13 occurs

two times. This corresponds to the table in choice A.

Choice B is incorrect. This table has the values for number and frequency reversed.

Choice C is incorrect because the frequency values don't represent the data listed.

Choice D is incorrect. This table represents the listed number values as the frequency values.

Question Difficulty: Medium

Question ID 618b5887

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: 618b5887

Each value in the data set shown represents the height, in centimeters, of a plant.

$$6, 10, 13, 2, 15, 22, 10, 4, 4, 4$$

What is the mean height, in centimeters, of these plants?

ID: 618b5887 Answer

Correct Answer: 9

Rationale

The correct answer is 9. The mean of a data set is the sum of the values in the data set divided by the number of values in the data set. It follows that the mean height, in centimeters, of these plants is the sum of the heights, in centimeters, of each plant, $6 + 10 + 13 + 2 + 15 + 22 + 10 + 4 + 4 + 4$, or 90, divided by the number of plants in the data set, 10. Therefore, the mean height, in centimeters, of these plants is $\frac{90}{10}$, or 9.

Question Difficulty: Medium

Question ID 5b7e585b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: 5b7e585b

$2, 9, 14, 23, 32$

What is the mean of the data shown?

A. 14

B. 16

C. 17

D. 32

ID: 5b7e585b Answer

Correct Answer: B

Rationale

Choice B is correct. The mean of a set of data values is the sum of all the data values divided by the number of data values in the set. The sum of the data values shown is $2 + 9 + 14 + 23 + 32$, or 80. Since there are 5 data values in the set, the mean of the data shown is $\frac{80}{5}$, or 16.

Choice A is incorrect. This is the median, not the mean, of the data shown.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect. This is the maximum, not the mean, of the data shown.

Question Difficulty: Medium

Question ID 9c4d9f67

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: 9c4d9f67

$6, 6, 8, 8, 8, 10, 21$

Which of the following lists represents a data set that has the same median as the data set shown?

A. $4, 6, 6, 6, 8, 8$

B. $6, 6, 8, 8, 10, 10$

C. $6, 8, 10, 10, 10, 12$

D. $8, 8, 10, 10, 21, 21$

ID: 9c4d9f67 Answer

Correct Answer: B

Rationale

Choice B is correct. If a data set contains an odd number of data values, the median is represented by the middle data value in the list when the data values are listed in ascending or descending order. Since the data set shown has 7 data values and is in ascending order, it follows that the median is the fourth data value in the list, or 8. If a data set contains an even number of data values, the median is between the two middle data values when the values are listed in ascending or descending order. Since each of the choices consists of a data set with 6 data values in ascending order, it follows that the median is between the third and fourth data value. The third and fourth data values in choice B are 8 and 8. Thus, choice B represents a data set with a median of 8. Since the median of the data set shown is 8 and choice B represents a data set with a median of 8, it follows that choice B represents a data set that has the same median as the data set shown.

Choice A is incorrect. This list represents a data set with a median of 6, not 8.

Choice C is incorrect. This list represents a data set with a median of 10, not 8.

Choice D is incorrect. This list represents a data set with a median of 10, not 8.

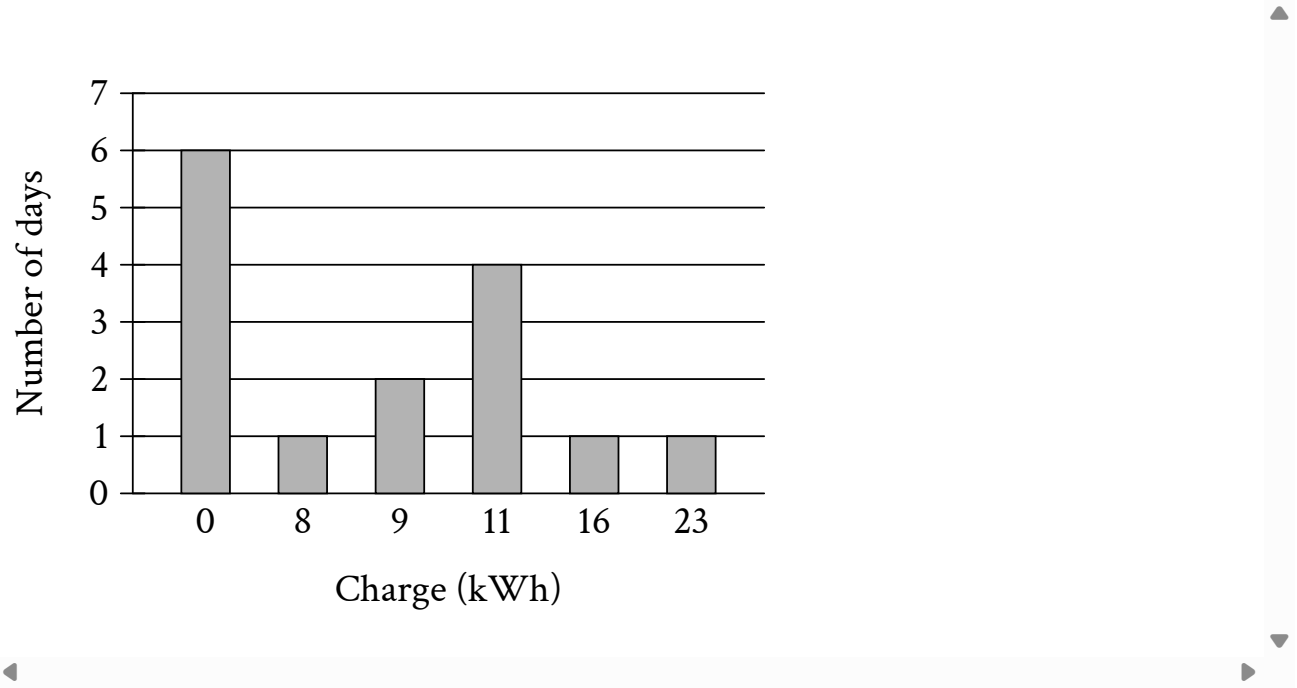
Question Difficulty: Medium

Question ID 9e7647d7

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: 9e7647d7

The bar graph summarizes the charge, in kilowatt-hours (kWh), a battery received each day for 15 days.



For how many of these 15 days did the battery receive a charge of $0\ \text{kWh}$?

A. 0

B. 1

C. 4

D. 6

ID: 9e7647d7 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that the bar graph summarizes the charge, in kilowatt-hours (kWh), a battery received each day for 15 days. The height of each bar in the bar graph shown represents the number of days the battery received the charge, in kWh, specified at the bottom of the bar. The bar for a charge of $0\ \text{kWh}$ reaches a height of 6. Therefore, the battery received a charge of $0\ \text{kWh}$ for 6 of these days.

Choice A is incorrect. This is the charge, in kWh, that the battery received, not the number of days the battery received this charge.

Choice B is incorrect. This is the number of days the battery received a charge of either 8, 16, or $23\ \text{kWh}$.

Choice C is incorrect. This is the number of days the battery received a charge of $11\ \mathrm{kWh}$.

Question Difficulty: Medium

Question ID 544f18c9

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Problem-Solving and Data Analysis	One-variable data: Distributions and measures of center and spread	Medium

ID: 544f18c9

A list of 10 data values is shown.

$6, 8, 16, 4, 17, 26, 8, 5, 5, 5$

What is the mean of these data?

ID: 544f18c9 Answer

Correct Answer: 10

Rationale

The correct answer is 10. The mean of a data set is calculated by dividing the sum of the data values by the number of data values in the data set. For this data set, the mean can be calculated as $\frac{6+8+16+4+17+26+8+5+5+5}{10}$, which is equivalent to $\frac{100}{10}$, or 10.

Question Difficulty: Medium