

Topic: One-way data

Question: In statistics problems, the individuals in a data set can be referred to by many different names. Which of the following words would not be used to refer to the individuals in a data set?

Answer choices:

- A Responses
- B Participants
- C Cases
- D Experimental units



Solution: A

The individuals in a data set are the items in the data set. The information about the individuals are the variables that are being measured. In this case, “responses” would be a variable of the individual respondents. The other three choices: participants, cases, and experimental units, are types of individuals that you might see in a statistics problem.



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Question: Which of the following is a categorical variable?

Answer choices:

- A The screen size of a cell phone, in inches
- B A customer's age, by age group (toddler, child, preteen, teen, adult)
- C The cost of an item, in dollars
- D The amount of electrical current in a wire



Solution: B

A categorical variable is a variable that uses words for variable names. They're non-numerical variables, which means they're not used for measurement or calculations.

A customer's age, by age range, would be considered categorical because we're calling them a toddler, child, preteen, and adult, even though age could be considered a number.

A quantitative variable uses numerical measurements. Inches, dollars and electrical current are all numerical amounts.



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Question: Customers often wish to compare the fuel economy of different half-ton pickup trucks before making a purchase. Which of the following variables are categorical?

Vehicles	Engine	HP / lb-ft	City MPG	Hwy. MPG	Comb. MPG
Chevy Silverado	4.3L V-6	285 / 305	18	24	20
Chevy Silverado	5.3L V-8	355 / 383	16	23	19
Ford F-150	3.7L V-6	302 / 278	17	23	19
Ford F-150 EB	3.5L V-6 TT	365 / 420	16	22	18
Ram 1500 HFE	3.6L V-6	305 / 269	18	25	21
Ram 1500 ED	3.0L V-6 TD	240 / 420	18	28	23
Toyota Tundra	4.0L V-6	270 / 278	16	20	17
Toyota Tundra	4.6L V-8	310 / 327	15	19	16

Answer choices:

- A The engine type
- B Horse power and pounds per foot
- C All of the MPG variables
- D All of the answer choices are quantitative



Solution: A

Categorical data divides things into categories. Even though engine type is reported as a number, these numbers are types of engines, so this variable is categorical.

The other variables are measurements, so they're quantitative variables.

HP / lb-ft means Horsepower and pounds per foot, which is a measurement of energy that can be converted to watts. MPG means miles per gallon and is also a measurement.

