1. The miles per gallon rating for 30 cars are shown in the histogram below.



What percentage of cars got 40 miles per gallon or more?

- A. 23% of cars got 40 miles per gallon or more.
- B. 45% of cars got 40 miles per gallon or more.
- C. 40% of cars got 40 miles per gallon or more.
- D. 20% of cars got 40 miles per gallon or more.
- E. 33% of cars got 40 miles per gallon or more.
- F. 10% of cars got 40 miles per gallon or more.
- G. 25% of cars got 40 miles per gallon or more.
- H. 0% of cars got 40 miles per gallon or more.

2. Contrary to our intuition, births are not evenly distributed across the days of the week. The bar chart below gives the of percentage of babies born on each day of the week in 2008.



What was the least common day of birth in 2008?

A. Sunday was the least common day of the week to be born in 2008.

B. Friday was the least common day of the week to be born in 2008.

C. Tuesday was the least common day of the week to be born in 2008.

D. Monday was the least common day of the week to be born in 2008.

E. Thursday was the least common day of the week to be born in 2008.

F. Saturday was the least common day of the week to be born in 2008.

G. Wednesday was the least common day of the week to be born in 2008.

3. A survey was conducted of 130 purchasers of new BMW 3 series cars, 130 purchasers of new BMW 5 series cars, and 130 purchasers of new BMW 7 series cars. In it, people were asked the age they were when they purchased their car. The following box plots display the results.



Look at the BMW 5 series. Are there more data points in the interval from 35 to 45 or in the interval from 45 to 55?

A. There are more data points in the interval from 35 to 45.

B. There are more data points in the interval from 45 to 55.

4. Below is a frequency table of a random sample of the heights in feet of 25 trees sampled from the SWOCC Coos Bay Campus.

Tree Height	Frequency
25 to 30	2
30 to 35	4
35 to 40	5
40 to 45	5
45 to 50	4
50 to 55	3
55 to 60	2

Use the table to estimate the mean tree height \bar{x} of this sample.

A. The approximate mean tree height \bar{x} of this sample is 41.2 feet.

B. The approximate mean tree height \bar{x} of this sample is 42.1 feet.

C. The approximate mean tree height \bar{x} of this sample is 41.3 feet.

D. The approximate mean tree height \bar{x} of this sample is 41.4 feet.

E. The approximate mean tree height \bar{x} of this sample is 41.9 feet.

F. The approximate mean tree height \bar{x} of this sample is 41.8 feet.

G. The approximate mean tree height \bar{x} of this sample is 42.6 feet.

H. The approximate mean tree height \bar{x} of this sample is 41.5 feet.

5. A teacher wants to know if her students are doing homework, so she randomly selects rows two and five and then calls on all students in row two and all students in row five to present the solutions to homework problems to the class.

The above is an example of a

- A. simple random sample.
- B. cluster sample.
- C. systematic sample.
- D. convenience sample.
- E. self-selection sample.

F. stratified sample.

6. Identify the type of data that would be used to describe a response (quantitative discrete, quantitative continuous, or qualitative).

time in line to buy groceries

A. qualitative

B. quantitative continuous

C. quantitative discrete

7. The common fruit fly Drosophila melanogaster is the most studied organism in genetic research because it is small, easy to grow, and reproduces rapidly. The length of the thorax (where the wings and legs attach) in a population of male fruit flies is approximately Normal with mean $\mu = 0.8$ millimeters (mm) and standard deviation $\sigma = 0.078$ mm.

About what percentage of thorax lengths in fruit flies are longer than 0.711 mm?

A. About 78.29% of fruit fly thorax lengths are longer than 0.711 mm.

B. About 74.29% of fruit fly thorax lengths are longer than 0.711 mm.

C. About 93.29% of fruit fly thorax lengths are longer than 0.711 mm.

D. About 89.89% of fruit fly thorax lengths are longer than 0.711 mm.

E. About 76.29% of fruit fly thorax lengths are longer than 0.711 mm.

F. About 80.89% of fruit fly thorax lengths are longer than 0.711 mm.

G. About 87.29% of fruit fly thorax lengths are longer than 0.711 mm.

H. About 71.89% of fruit fly thorax lengths are longer than 0.711 mm.

8. The histogram below shows the distribution average fuel efficiency for 26,225 fuel ups in miles per gallon for 352 cars of the same year and model of car that Mr. Holt owns.



From this histogram it is reasonable to assume that fuel efficiency at fuel up is normally distributed with a mean of about is $\mu = 32.5$ MPG with a standard deviation of about $\sigma = 5$ MPG.

Using this information, approximately what percentage of fuel-ups for cars of this year and model fall between 27 MPG and 29 MPG?

A. Approximately 10.03% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

B. Approximately 10.63% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

C. Approximately 4.03% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

D. Approximately 27.63% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

E. Approximately 16.03% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

F. Approximately 6.63% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

G. Approximately 29.23% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

H. Approximately 5.43% of fuel-ups for cars of this model and year fall between 27 MPG and 29 MPG.

9. The Harris Poll measures public opinion in the United States on a broad variety of topics from politics to purchasing habits. The following question makes use of the data obtained from one of these polls.

From a random sample of 569 smokers when asked the question:

"Do you believe that smoking will probably shorten your life, or not?"

478 of the sample answered "yes."

Construct a 99% confidence interval for the proportion p of smokers who believe that smoking will shorten their life.

A. A 99% confidence interval is (0.84, 0.88).

B. A 99% confidence interval is (0.84, 0.82).

- C. A 99% confidence interval is (0.74, 0.82).
- D. A 99% confidence interval is (0.71, 0.88).
- E. A 99% confidence interval is (0.71, 0.79).
- F. A 99% confidence interval is (0.74, 0.79).
- G. A 99% confidence interval is (0.8, 0.88).
- H. A 99% confidence interval is (0.8, 0.82).

10. Without any prior estimate of a population proportion p, what sample size would we need to achieve a margin of error of $\pm 2.5\%$ at 99% confidence.

A. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2647.
B. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2661.
C. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2658.
D. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2652.
E. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2655.
F. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2648.
G. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2648.
H. The sample size needed to achieve a margin of error of ±2.5% at 99% confidence is n = 2651.

Answers

- 1. F.
- 2. A.
- 3. A.
- 4. E.
- 5. B.
- 6. B.
- 7. G.
- 8. B.
- 9. G.
- 10. E.