

Next Monday, October 5, is the last session before you take the PSAT on Thursday, Oct. 8.

What do you want to discuss then?

triangle - more difficult (2 Δ s multiplying)

sophisticated regression again

4. p. 37 Ch. 6 #38

38. In the equation below, what is the value of $a + b$?



$$\frac{x}{x-3} + \frac{4}{x+2} = \frac{ax^2 + bx - 12}{x^2 - x - 6}$$

.

1

$$\frac{x_1}{x_1 - 3} + \frac{4}{x_1 + 2} \sim \frac{ax_1^2 + bx_1 - 12}{x_1^2 - x_1 - 6}$$

REGRESSION PARAMETERS

$a = 1$

$b = 6$

STATISTICS

$RMSE = 0$

RESIDUALS

e_1

2

$x_1 = \text{random}(5)$

$=$

0.190898427583

0.624260916235

[5 element list](#)

3

$a + b$

$=$

7

9. p. 101 Ch. 12 #43

43. For the system of equations below, the lines intersect at the point $(2, 4)$. If $b > 0$, what is the value of b ?

4

$$\begin{aligned} \frac{1}{2}ay - \frac{1}{2}bx &= 7x \\ \frac{1}{2}ay &= \frac{1}{2}b^2y - 3bx + 5x \end{aligned}$$

1

$$\left[\frac{1}{2}ay_1 - \frac{1}{2}bx_1, \frac{1}{2}ay_1 \right] \sim \left[7x_1, \frac{1}{2}b^2y_1 - 3bx_1 + 5x_1 \right] \{b > 0\}$$

REGRESSION PARAMETERS

$a = 9$
 $b = 4$

STATISTICS

RESIDUALS

$RMSE = 0$
 e_1

2

$x_1 = 2$

-10
 10

3

$y_1 = 4$

-10
 10

4

b

$= 4$

$$\left[left_1, left_2 \right] \sim \left[right_1, right_2 \right]$$

or...

$$\left[\frac{1}{2}a \cdot 4 - \frac{1}{2}b \cdot 2, \frac{1}{2}a \cdot 4 \right] \sim \left[7 \cdot 2, \frac{1}{2}b^2 \cdot 4 - 3b \cdot 2 + 5 \cdot 2 \right] \{b > 0\}$$

REGRESSION PARAMETERS

$a = 9$

$b = 4$

STATISTICS

RESIDUALS

$RMSE = 0$

e_2

10. p. 262 Ch. 27 #27

3

27. A circle in the xy -plane has its center at $(-2, 4)$ and has a radius of 9. An equation of this circle is $x^2 + y^2 + ax + by + c = 0$. What is the value of $a + b + c$?

$$(x-h)^2 + (y-k)^2 = r^2 \quad (x - (-2))^2 + (y - 4)^2 = 81$$

$$(x+2)^2 + (y-4)^2 - 81 = 0$$

$$x_1^2 + y_1^2 + ax_1 + by_1 + c \sim (x_1 + 2)^2 + (y_1 - 4)^2 -$$

REGRESSION PARAMETERS

$a = 4$

$b = -8$

$c = -61$

STATISTICS

$RMSE = 0$

RESIDUALS

e_1

$a + b + c$

$= -65$

$$(x + 2)^2 + (y - 4)^2 = 81$$

6

 $(-2, 13)$ ☐ Label

7

 $(-11, 4)$ ☐ Label

8

 $(-2, -5)$ ☐ Label

9

 $(7, 4)$ ☐ Label

$$x_1 = [-2, -11, -2, 7]$$

$$y_1 = [13, 4, -5, 4]$$

Problem-Solving and Data Analysis is the "leftovers" category.

From the CB's description:

"Problem-Solving and Data Analysis measures the ability to apply quantitative reasoning about ratios, rates, and proportional relationships; understand and apply unit rate; and analyze and interpret one- and two-variable data...

- Ratios, rates, proportional relationships, and units
- Percentages
- One-variable data: distributions and measures of center and spread
- Two-variable data: models and scatterplots
- Probability and conditional probability
- Inference from sample statistics and margin of error
- Evaluating statistical claims: observational studies and experiments"

<https://satsuite.collegeboard.org/sat/whats-on-the-test/math/types/problem-solving>

Percentages, including use of the % key in Desmos

Question 1379521d

Problem-Solving and Data Analysis - Percentages

3/21

✕

🔖

📄

ABC

Show

A school district is forming a committee to discuss plans for the construction of a new high school. Of those invited to join the committee, 15% are parents of students, 45% are teachers from the current high school, 25% are school and district administrators, and the remaining 6 individuals are students. How many more teachers were invited to join the committee than school and district administrators?

Answer

?

1

$$6 \sim (1 - 0.15 - 0.45 - 0.25)C$$

REGRESSION PARAMETERS

$C = 40$

STATISTICS

RMSE = 0

RESIDUALS

e_1

45% - 25%

2

$$20\% \text{ of } C$$

= 8

$$6 = (100\% - 15\% - 45\% - 25\%)C$$

committee

The correct answer is 8. The 6 students represent $(100 - 15 - 45 - 25)\% = 15\%$ of those invited to join the committee. If x people were invited to join the committee, then $0.15x = 6$. Thus, there were $\frac{6}{0.15} = 40$ people invited to join the committee. It follows that there were $0.45(40) = 18$ teachers and $0.25(40) = 10$ school and district administrators invited to join the committee. Therefore, there were 8 more teachers than school and district administrators invited to join the committee.

Question 40f82840

Problem-Solving and Data Analysis - Percentages

4/21

✕

🔖

📄

ABC

Show

A reseller buys certain books for a purchase price of 5.00 dollars each and then marks them each for sale at a consumer price that is 270% of the purchase price. After 4 months, any remaining books not yet sold are marked at a discounted price that is 70% off the consumer price. What is the discounted price of each of the remaining books, in dollars?

Answer

?

1

$$270\% \text{ of } 5.00 - 70\% \text{ of } (270\% \text{ of } 5.00)$$

= 4.05

The correct answer is 4.05. It's given that the purchase price for certain books is 5.00 dollars each. It's also given that each book is marked for sale at a consumer price that is 270% of the purchase price. Since the consumer price is 270% of the purchase price of 5.00 dollars, it follows that the consumer price is $(2.7)(5.00)$, or 13.50, dollars. It's given that after 4 months, any remaining books are discounted at 70% off the consumer price. Thus, the discount amount is $(0.7)(13.50)$, or 9.45, dollars. Subtracting the discount amount from the consumer price gives the discounted price of each of the remaining books: $13.50 - 9.45 = 4.05$. Note that 4.05 and 81/20 are examples of ways to enter a correct answer.

More percentages

Question 6a912c08

Problem-Solving and Data Analysis - Percentages

12/21

ABC

Show

The number a is 70% less than the positive number b . The number c is 80% greater than a . The number c is how many times b ?

Answer

$c = nb \Rightarrow n = \frac{c}{b}$

1

$[a, c] \sim [b - 70\% \text{ of } b, a + 80\% \text{ of } a] \{ \bullet > 0 \}$

REGRESSION PARAMETERS

$a = 1$ $c = 1.8$ $b = 3.33333$

STATISTICS

RESIDUALS

$RMSE = 0$ e_1

2

$\frac{c}{b}$

= 0.54

The correct answer is .54. It's given that the number a is 70% less than the positive number b . Therefore, $a = (1 - \frac{70}{100})b$, which is equivalent to $a = (1 - 0.70)b$, or $a = 0.30b$. It's also given that the number c is 80% greater than a . Therefore, $c = (1 + \frac{80}{100})a$, which is equivalent to $c = (1 + 0.80)a$, or $c = 1.80a$. Since $a = 0.30b$, substituting $0.30b$ for a in the equation $c = 1.80a$ yields $c = 1.80(0.30b)$, or $c = 0.54b$. Thus, c is 0.54 times b . Note that .54 and 27/50 are examples of ways to enter a correct answer.

Question 5d5091c2

Problem-Solving and Data Analysis - Percentages

8/21

ABC

Show

A customer's monthly water bill was \$75.74. Due to a rate increase, her monthly bill is now \$79.86. To the nearest tenth of a percent, by what percent did the amount of the customer's water bill increase?

☐ 4.1%

☐ 5.1%

☐ 5.2%

☐ 5.4%

Choice D is correct. To find the percent increase of the customer's water bill, the absolute increase of the bill, in dollars, is divided by the original amount of the bill, and the result is multiplied by 100%, as follows:
 $\frac{79.86 - 75.74}{75.74} \approx 0.054$; $0.054 \times 100\% = 5.4\%$.

Choice A is incorrect. This choice is the difference $79.86 - 75.74$ rounded to the nearest tenth, which is the (absolute) increase of the bill's amount, not its percent increase. Choice B is incorrect and may be the result of some calculation errors. Choice C is incorrect and is the result of dividing the difference between the two bill amounts by the new bill amount instead of the original bill amount.

1

$79.86 - 75.74 \sim p\% \text{ of } 75.74$

REGRESSION PARAMETERS

$p = 5.43966$

STATISTICS

RESIDUALS

$RMSE = 0$ e_1

Ratios, rates, proportions

Question 5749ea7

Problem-Solving and Data Analysis - Ratios, rates, proportional relationships, and units

MW h
2x

State	Power capacity			
	Low	Medium	High	Total
Texas	4	2	3	9
California	1	0	1	2
Oregon	1	0	1	2
Indiana	0	2	0	2
Colorado	1	1	0	2
Iowa	2	0	0	2
Oklahoma	1	0	0	1
Total	10	5	5	20

4952 · 24 = 118848

The table shows the distribution, by location and power capacity (maximum rate of power generation) of the twenty largest wind projects in the United States in 2013. The total power capacity of the nine wind projects located in Texas was 4,952 megawatts (MW), and the total power capacity of the twenty wind projects was 11,037 MW in 2013. The amount of energy produced in one hour at a rate of one megawatt is one megawatt-hour. If each of the nine Texas wind projects in 2013 had operated continuously for 24 hours at the maximum rate of power generation, approximately how many megawatt-hours of energy would the nine projects have produced?

- ☐ 200
- ☐ 5,000
- ☐ 11,000
- ☐ 120,000

Choice D is correct. It's given that the total power capacity of the nine wind projects in Texas was 4,952 megawatts. Therefore, if all nine Texas projects operated continuously for 1 hour, the amount of energy produced would be 4,952 megawatt-hours. It follows that, if all nine Texas projects operated continuously for 24 hours, the amount of energy produced, in megawatt-hours, would be $(4,952)(24) = 118,848$, which is closest to 120,000.

Choice A is incorrect. This is approximately the amount of energy produced for the nine projects divided by 24 hours. Choice B is incorrect. This is approximately the amount of energy produced for the nine projects. Choice C is incorrect. This is approximately the given amount of energy produced for all twenty projects in the table.

Question 34f06f1d

Problem-Solving and Data Analysis - Ratios, rates, proportional relationships, and units

7/24

If $\frac{4a}{b} = 6.7$ and $\frac{a}{bn} = 26.8$, what is the value of n ?

Answer

$\left[\frac{4a}{b}, \frac{a}{bn} \right] \sim [6.7, 26.8]$

REGRESSION PARAMETERS
 $b = 2.44776$ $n = 0.0625$

STATISTICS
 $RMSE = 2.59 \times 10^{-15}$

RESIDUALS
 e_1

$a = 4.1$

$n = 0.0625$

$n = \frac{1}{16}$

The correct answer is .0625. It's given that $\frac{4a}{b} = 6.7$ and $\frac{a}{bn} = 26.8$. The equation $\frac{4a}{b} = 6.7$ can be rewritten as $(4) \left(\frac{a}{b} \right) = 6.7$. Dividing both sides of this equation by 4 yields $\frac{a}{b} = 1.675$. The equation $\frac{a}{bn} = 26.8$ can be rewritten as $\left(\frac{a}{b} \right) \left(\frac{1}{n} \right) = 26.8$. Substituting 1.675 for $\frac{a}{b}$ in this equation yields $(1.675) \left(\frac{1}{n} \right) = 26.8$, or $\frac{1.675}{n} = 26.8$. Multiplying both sides of this equation by n yields $1.675 = 26.8n$. Dividing both sides of this equation by 26.8 yields $n = 0.0625$. Therefore, the value of n is 0.0625. Note that .0625, 0.062, 0.063, and 1/16 are examples of ways to enter a correct answer.

Unit conversion/dimensional analysis

Question 1b0541ca

Problem-Solving and Data Analysis - Ratios, rates, proportional relationships, and units

4/24



Show

On April 18, 1775, Paul Revere set off on his midnight ride from Charlestown to Lexington. If he had ridden straight to Lexington without stopping, he would have traveled 11 miles in 26 minutes. In such a ride, what would the average speed of his horse have been, to the nearest tenth of a mile per hour?

Answer



$$\frac{11}{26} \cdot \frac{60}{1} = 25.3846153846$$

$$\frac{11 \text{ mi}}{26 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ h}} = \frac{\text{mi}}{\text{h}}$$

The correct answer is 25.4. The average speed is the total distance divided by the total time.

The total distance is 11 miles and the total time is 26 minutes. Thus, the average speed is $\frac{11}{26}$

miles per minute. The question asks for the average speed in miles per hour, and there are 60 minutes in an hour; converting miles per minute to miles per hour gives the following:

$$\text{Average speed} = \frac{11 \text{ miles}}{26 \text{ minutes}} \times \frac{60 \text{ minutes}}{1 \text{ hour}}$$

$$= \frac{660}{26} \text{ miles per hour}$$

$$\approx 25.38 \text{ miles per hour}$$

Therefore, to the nearest tenth of a mile per hour, the average speed of Paul Revere's ride would have been 25.4 miles per hour. Note that 25.4 and $127/5$ are examples of ways to enter a correct answer.

Question 2c14fa19

Problem-Solving and Data Analysis - Ratios, rates, proportional relationships, and units

5/24



Show

A competition consisted of four different events. One participant completed the first event with an average speed of 20.300 miles per hour. What was this average speed, in yards per hour? (1 mile = 1,760 yards)

Answer



$$\frac{20.300}{1} \cdot \frac{1760}{1} = 35728$$

The correct answer is 35,728. It's given that 1 mile = 1,760 yards. It follows that an average speed of 20.300 miles per hour is equivalent to $\left(\frac{20.300 \text{ miles}}{1 \text{ hour}}\right) \left(\frac{1,760 \text{ yards}}{1 \text{ mile}}\right)$, or 35,728 yards per hour.

More units, with area and volume (square units, cubic units)

Question d61c057

Problem-Solving and Data Analysis - Ratios, rates, proportional relationships, and units

3/24 Show

$$\frac{353 \text{ kg}}{1 \text{ m}^3} = \frac{345 \text{ kg}}{x \text{ m}^3}$$

The density of a certain type of wood is 353 kilograms per cubic meter. A sample of this type of wood is in the shape of a cube and has a mass of 345 kilograms. To the nearest hundredth of a meter, what is the length of one edge of this sample?

☐ 0.98
☐ 0.99
☐ 1.01
☐ 1.02

$V = x \cdot x \cdot x$
 $V = 0.977337110482$
 $\sqrt[3]{\frac{345}{353}}$
 $= 0.992387906552$

Choice B is correct. It's given that the density of a certain type of wood is 353 kilograms per cubic meter (kg/m^3), and a sample of this type of wood has a mass of 345 kg. Let x represent the volume, in m^3 , of the sample. It follows that the relationship between the density, mass, and volume of this sample can be written as $\frac{353 \text{ kg}}{1 \text{ m}^3} = \frac{345 \text{ kg}}{x \text{ m}^3}$, or $353 = \frac{345}{x}$. Multiplying both sides of this equation by x yields $353x = 345$. Dividing both sides of this equation by 353 yields $x = \frac{345}{353}$. Therefore, the volume of this sample is $\frac{345}{353} \text{ m}^3$. Since it's given that the sample of this type of wood is a cube, it follows that the length of one edge of this sample can be found using the volume formula for a cube, $V = s^3$, where V represents the volume, in m^3 , and s represents the length, in m, of one edge of the cube. Substituting $\frac{345}{353}$ for V in this formula yields $\frac{345}{353} = s^3$. Taking the cube root of both sides of this equation yields $\sqrt[3]{\frac{345}{353}} = s$, or $s \approx 0.99$. Therefore, the length of one edge of this sample to the nearest hundredth of a meter is 0.99.

Question dc08c9bd

Problem-Solving and Data Analysis - Ratios, rates, proportional relationships, and units

18/24 Show

A certain park has an area of 11,863,808 square yards. What is the area, in square miles, of this park? (1 mile = 1,760 yards)

☐ 1.96
☐ 3.83
☐ 3,444.39
☐ 6,740.8

$$11,863,808 \cdot \left(\frac{1}{1,760}\right)^2 = 3.83$$

Choice B is correct. Since 1 mile is equal to 1,760 yards, 1 square mile is equal to $1,760^2$, or 3,097,600, square yards. It's given that the park has an area of 11,863,808 square yards. Therefore, the park has an area of $\left(\frac{11,863,808 \text{ square yards}}{3,097,600 \text{ square yards}}\right)$, or $\frac{11,863,808}{3,097,600}$ square miles. Thus, the area, in square miles, of the park is 3.83.

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

Choice C is incorrect. This is the square root of the area of the park in square yards, not the area of the park in square miles.

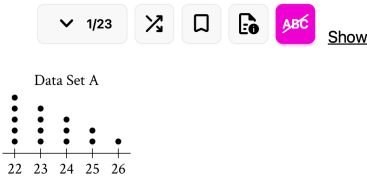
Choice D is incorrect and may result from converting 11,863,808 yards to miles, rather than converting 11,863,808 square yards to square miles.

$$11,863,808 \text{ yd}^2 \cdot \left(\frac{1 \text{ mi}}{1,760 \text{ yd}}\right)^2 = \text{mi}^2$$

Measures of center and spread, incl. reading from one-variable graphs

Question 1ecfdab

Problem-Solving and Data Analysis - One-variable data: Distributions and measures of center and spread



Data set A has 15 values and is represented by the dot plot shown. Data set B is created by adding 46 to each of the values in data set A. Which of the following correctly compares the medians and the ranges of data sets A and B?

Choice A is correct. The median is the middle value in a data set when the data are arranged in order from least to greatest. Since there are 15 values in data set A, the median is the 8th value. The 8th value is 23, so the median of data set A is 23. The range is found by subtracting the minimum value in a data set from the maximum value. The minimum value in data set A is 22 and the maximum value is 26. Therefore, the range of data set A is $26 - 22$, or 4. It's given that data set B is created by adding 46 to each of the values in data set A. Therefore, the 8th value in data set B is $23 + 46$, or 69, so the median of data set B is 69. The minimum value in data set B is $22 + 46$, or 68, and the maximum value is $26 + 46$, or 72. Therefore, the range of data set B is $72 - 68$, or 4. Since the median of data set A is 23, and the median of data set B is 69, the median of data set B is greater than the median of data set A. Since the ranges of data sets A and B are both 4, the range of data set B is equal to the range of data set A.

- ☐ The median of data set B is greater than the median of data set A, and the range of data set B is equal to the range of data set A.
- ☐ The median of data set B is greater than the median of data set A, and the range of data set B is greater than the range of data set A.
- ☐ The median of data set B is equal to the median of data set A, and the range of data set B is greater than the range of data set A.
- ☐ The median of data set B is equal to the median of data set A, and the range of data set B is equal to the range of data set A.

Question 1699f94b

Problem-Solving and Data Analysis - One-variable data: Distributions and measures of center and spread



15, 14, 18, 17, x

The mean and the median of the five numbers above are equal. Which of the following is NOT a possible value of x ?

- ☐ 6
- ☐ 11
- ☐ 16
- ☐ 21

Choice A is correct. If x is 6, then the five numbers in the given list are 15, 14, 18, 17, 6. The mean of these five numbers is the sum of all the values divided by the number of values, or $\frac{15+14+18+17+6}{5} = \frac{70}{5} = 14$. The median of these five numbers can be found by ordering the numbers from least to greatest and determining the middle value. When ordered from least to greatest, the numbers in the given list are 6, 14, 15, 17, 18, and the middle value is 15. Since the mean is 14 and the median is 15, the mean and median aren't equal when x is 6.

1

$A = [15, 14, 18, 17, n]$

$= [15, 14, 18, 17, 6]$

2

$\text{mean}(A)$

$= 14$

3

$\text{median}(A)$

$= 15$

4

$n = 6$

$\leq n \leq$ Step:

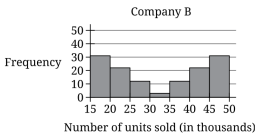
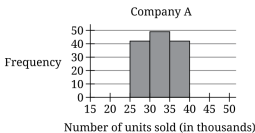
More center and spread

Question 17134d4d
Problem-Solving and Data Analysis - One-variable data: Distributions
and measures of center and spread

3/23

ABC

Show



The histograms summarize the distributions of number of units sold, in thousands, for company A and company B. Which statement best compares the standard deviations of number of units sold for these companies?

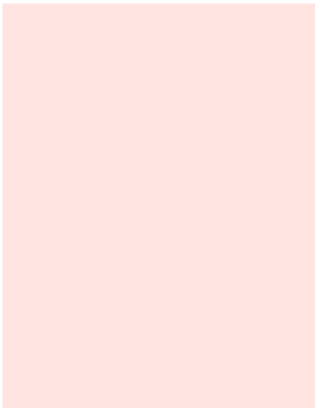
- ☐ The standard deviation of number of units sold for company A is less than the standard deviation of number of units sold for company B.

×
- ☐ The standard deviation of number of units sold for company A is greater than the standard deviation of number of units sold for company B.

×
- ☐ The standard deviation of number of units sold for company A is equal to the standard deviation of number of units sold for company B.

×
- ☐ There is not enough information to compare the standard deviations.

×

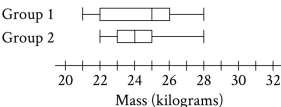


Question 6047ae7b
Problem-Solving and Data Analysis - One-variable data: Distributions
and measures of center and spread

13/23

ABC

Show



The box plots summarize the masses, in kilograms, of two groups of gazelles. Based on the box plots, which of the following statements must be true?

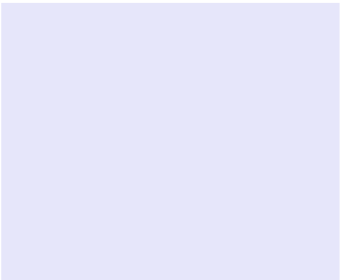
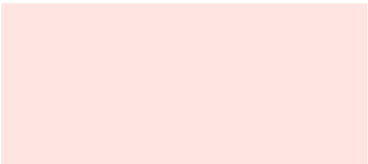
- ☐ The mean mass of group 1 is greater than the mean mass of group 2.

×
- ☐ The mean mass of group 1 is less than the mean mass of group 2.

×
- ☐ The median mass of group 1 is greater than the median mass of group 2.

×
- ☐ The median mass of group 1 is less than the median mass of group 2.

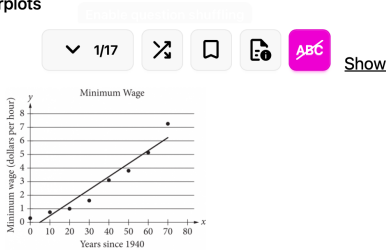
×



Scatterplots and linear models

Question e06b79e

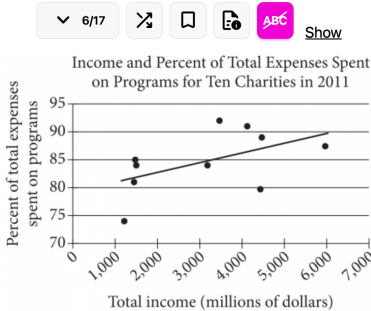
Problem-Solving and Data Analysis - Two-variable data: Models and scatterplots



- ☐ Each year between 1940 and 2010, the average increase in minimum wage was 0.096 dollars.
- ☐ Each year between 1940 and 2010, the average increase in minimum wage was 0.49 dollars.
- ☐ Every 10 years between 1940 and 2010, the average increase in minimum wage was 0.096 dollars.
- ☐ Every 10 years between 1940 and 2010, the average increase in minimum wage was 0.488 dollars.

Question 32b6daf7

Problem-Solving and Data Analysis - Two-variable data: Models and scatterplots

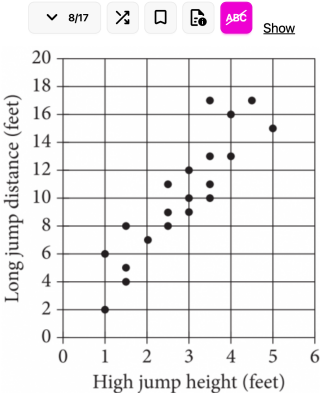


The scatterplot above shows data for ten charities along with the line of best fit. For the charity with the greatest percent of total expenses spent on programs, which of the following is closest to the difference of the actual percent and the percent predicted by the line of best fit?

- ☐ 10% ×
- ☐ 7% ×
- ☐ 4% ×
- ☐ 1% ×

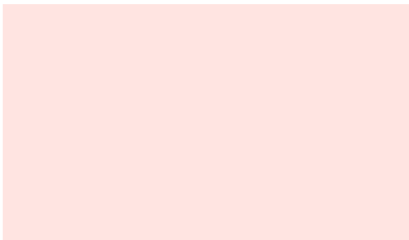
More scatterplots and regression

Question 6b0f9f95 Problem-Solving and Data Analysis - Two-variable data: Models and scatterplots

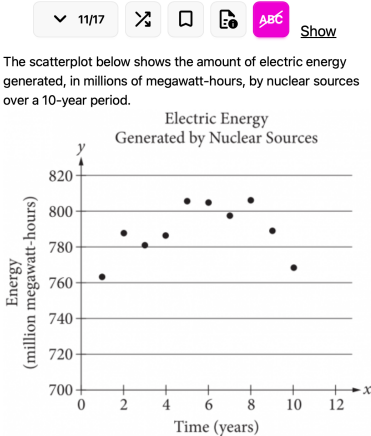


Each dot in the scatterplot above represents the height x , in feet, in the high jump, and the distance y , in feet, in the long jump, made by each student in a group of twenty students. The graph of which of the following equations is a line that most closely fits the data?

- ☐ $y = 0.82x + 3.30$
- ☐ $y = 0.82x - 0.82$
- ☐ $y = 3.30x + 0.82$
- ☐ $y = 3.30x - 3.30$

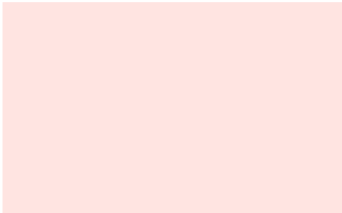


Question 82682ea2 Problem-Solving and Data Analysis - Two-variable data: Models and scatterplots



Of the following equations, which best models the data in the scatterplot?

- ☐ $y = 1.674x^2 + 19.76x - 745.73$
- ☐ $y = -1.674x^2 - 19.76x - 745.73$
- ☐ $y = 1.674x^2 + 19.76x + 745.73$
- ☐ $y = -1.674x^2 + 19.76x + 745.73$



Probability

Question 1e3791e1

Problem-Solving and Data Analysis - Probability and conditional probability

2/20

ABC

Show

At a conference, there are a total of 275 attendees. Each attendee is assigned to either group A, group B, or group C. If one of these attendees is selected at random, the probability of selecting an attendee who is assigned to group A is 0.44 and the probability of selecting an attendee who is assigned to group B is 0.24. How many attendees are assigned to group C?

Answer

Question 286915ee

Problem-Solving and Data Analysis - Probability and conditional probability

5/20

ABC

Show

Number of Contestants by Score and Day

	5 out of 5	4 out of 5	3 out of 5	2 out of 5	1 out of 5	0 out of 5	Total
Day 1	2	3	4	6	2	3	20
Day 2	2	3	5	5	4	1	20
Day 3	3	3	4	5	3	2	20
Total	7	9	13	16	9	6	60

The same 20 contestants, on each of 3 days, answered 5 questions in order to win a prize. Each contestant received 1 point for each correct answer. The number of contestants receiving a given score on each day is shown in the table above.

No contestant received the same score on two different days. If a contestant is selected at random, what is the probability that the selected contestant received a score of 5 on Day 2 or Day 3, given that the contestant received a score of 5 on one of the three days?

Answer

More probability

Question 6f515d59 Problem-Solving and Data Analysis - Probability and conditional probability

8/20

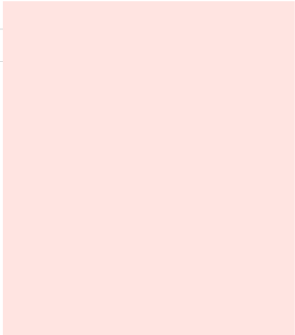
Show

The table summarizes the distribution of age and assigned group for 90 participants in a study.

	0–9 years	10–19 years	20+ years	Total
Group A	7	14	9	30
Group B	6	4	20	30
Group C	17	12	1	30
Total	30	30	30	90

One of these participants will be selected at random. What is the probability of selecting a participant from group A, given that the participant is at least 10 years of age? (Express your answer as a decimal or fraction, not as a percent.)

Answer



Question 76c6be31 Problem-Solving and Data Analysis - Probability and conditional probability

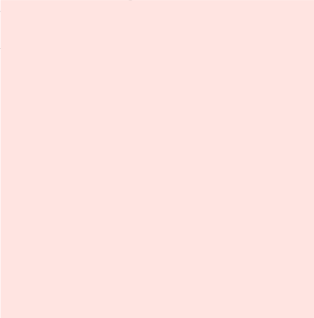
10/20

Show

	Phone	Email
Dinner dance	55%	80%
Football game	20%	10%
Picnic	20%	5%
Pool party	5%	5%
Total	100%	100%

An alumni association survey asked each high school graduate to select the one activity he or she preferred for the association's next event. Some of the people responded by phone, and the others responded by email. The table above shows the distribution of preferred activity, in percent, for each response type used. For the survey, the number of email responses was twice the number of phone responses. If a person who preferred a picnic is selected at random, what is the probability that the person responded by email?

Answer



Inference and statistical claims

Question 308084c5

Problem-Solving and Data Analysis - Inference from sample statistics and margin of error

2/12

ABC

Show

Sample	Percent in favor	Margin of error
A	52%	4.2%
B	48%	1.6%

The results of two random samples of votes for a proposition are shown above. The samples were selected from the same population, and the margins of error were calculated using the same method. Which of the following is the most appropriate reason that the margin of error for sample A is greater than the margin of error for sample B?

- ☐

Sample A had a smaller number of votes that could not be recorded.

x
- ☐

Sample A had a higher percent of favorable responses.
- ☐

Sample A had a larger sample size.
- ☐

Sample A had a smaller sample size.

x

Question 374f75b9

Problem-Solving and Data Analysis - Inference from sample statistics and margin of error

3/12

ABC

Show

Views on Nuclear Energy Use

Response	Frequency
Strongly favor	56
Somewhat favor	214
Somewhat oppose	104
Strongly oppose	37

A researcher interviewed 411 randomly selected US residents and asked about their views on the use of nuclear energy. The table above summarizes the responses of the interviewees. If the population of the United States was 300 million when the survey was given, based on the sample data for the 411 US residents, what is the best estimate, in millions, of the difference between the number of US residents who somewhat favor or strongly favor the use of nuclear energy and the number of those who somewhat oppose or strongly oppose it? (Round your answer to the nearest whole number.)

Answer

?

More inference and statistical claims

Question 4a422e3e

Problem-Solving and Data Analysis - Evaluating statistical claims:
Observational studies and experiments

4/12

ABC

Show

To determine the mean number of children per household in a community, Tabitha surveyed 20 families at a playground. For the 20 families surveyed, the mean number of children per household was 2.4. Which of the following statements must be true?

- ☐ The mean number of children per household in the community is 2.4.

×
- ☐ A determination about the mean number of children per household in the community should not be made because the sample size is too small.

×
- ☐ The sampling method is flawed and may produce a biased estimate of the mean number of children per household in the community.

×
- ☐ The sampling method is not flawed and is likely to produce an unbiased estimate of the mean number of children per household in the community.

×

Question 6fca0144

Problem-Solving and Data Analysis - Evaluating statistical claims:
Observational studies and experiments

5/12

ABC

Show

For a baobab tree habitat in South Africa, a scientist randomly selected 50 baobab trees that were 17 years old and randomly assigned them to two groups. Each group was subjected to a different watering pattern for 2 consecutive years to observe whether the watering pattern affects the trees' growth rate. Based on the design of the study, what is the largest group to which these results can be applied?

- ☐ All the 50 baobab trees that were selected in this habitat

:
- ☐ All the baobab trees that were 19 years old in this habitat

:
- ☐ All the baobab trees that were 17 years old in South Africa

:
- ☐ All the baobab trees that were 17 years old in this habitat

:

Still more inference and statistical claims

Question 6fd95a0a

Problem-Solving and Data Analysis - Inference from sample statistics and margin of error

▼ 6/12









Show

A park ranger asked a random sample of visitors how far they hiked during their visit. Based on the responses, the estimated mean was found to be 4.5 miles, with an associated margin of error of 0.5 miles. Which of the following is the best conclusion from these data?

- ☐ It is likely that all visitors hiked between 4 and 5 miles.

×
- ☐ It is likely that most visitors hiked exactly 4.5 miles.

×
- ☐ It is not possible that any visitor hiked less than 3 miles.

×
- ☐ It is plausible that the mean distance hiked for all visitors is between 4 and 5 miles.

×