8

A city with 120,000 residents is voting on a proposal that would eliminate overnight parking of vehicles on the city's streets. An independent company randomly surveys 1,200 residents to see whether or not residents would support this proposal. The outcome of the survey shows that 60% of the residents surveyed approve of the proposal with a margin of error of 2%. Which of the following statements is a plausible conclusion from the outcome of the survey?

A) Exactly 60% of city residents approve eliminating overnight parking.

B) There are 72,000 city residents who approve eliminating overnight parking.

C) About 2% of the city residents do not approve eliminating overnight parking.

D) Between 58% and 62% of the city residents approve eliminating overnight parking.

9

On November 1st, there were 2,500 boxes in a warehouse. On December 1st, there were 15% fewer boxes in the warehouse than there were on November 1st. On January 1st, there were 20% more boxes in the warehouse than there were on December 1st. How many boxes were in the warehouse on January 1st?

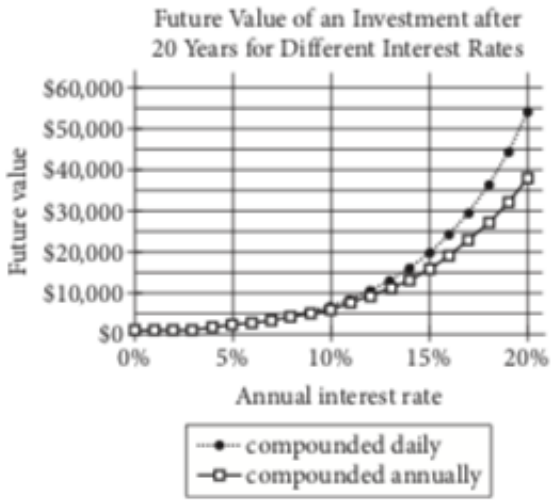
A) 1,700

B) 2,125

C) 2,550

D) 2,625

11



An initial investment of $1,000 is made at a constant annual interest rate. The graphs above show the corresponding future value v, in dollars, of the investment for different annual interest rates, r, after 20 years. One graph shows the value when the interest is compounded daily, and the other graph shows the value when the interest is compounded annually. Which of the following statements is true?

A) As r increases at a constant rate, v increases more rapidly if interest is compounded annually rather than daily.

B) As r increases at a constant rate, v increases more rapidly if interest is compounded daily rather than annually.

C) As r increases at a constant rate, the difference in interest compounded daily and interest compounded annually increases at a constant rate.

D) If $r = 15\%$ and interest is compounded annually, a $1,000 investment will be worth $20,000 after 20 years.

19

Kelly enlarged the area of a photograph to 250% of its original size. The original dimensions of the photograph were 5 inches by 7 inches. What is the area of the enlarged photograph, in square inches?

A) 71.25

B) 87.5

C) 218.75

D) 3,000

30

Hongbo sold x cell phones in 2013. The number of cell phones he sold in 2014 was 128% greater than in 2013, and the number of cell phones he sold in 2015 was 29% greater than in 2014. Which of the following expressions represents the number of cell phones Hongbo sold in 2015?

A) $(0.29)(1.28x)$

B) $(0.29)(2.28x)$

C) $(1.29)(1.28x)$

D) $(1.29)(2.28x)$

31

Anna was 99 centimeters tall the day she turned 3 years old, and she was 106.5 centimeters tall the day she turned 4 years old. If Anna's height increases by the same amount each year between the ages of 2 and 8, how many centimeters tall will she be the day she turns 7 years old?

32

Cars Registered in Town X

Car color	Percent of registered cars
Black	13%
Blue	7%
Gray	7%
Silver	28%
White	32%
Other	13%

The table above shows the distribution of color for the 4000 cars registered in Town X. Based on the table, how many more white cars than black cars are registered in Town X?

14

A fish hatchery has three tanks for holding fish before they are introduced into the wild. Ten fish weighing less than 5 ounces are placed in tank A. Eleven fish weighing at least 5 ounces but no more than 13 ounces are placed in tank B. Twelve fish weighing more than 13 ounces are placed in tank C. Which of the following could be the median of the weights, in ounces, of these 33 fish?

A) 4.5

B) 8

C) 13.5

D) 15

Questions 17 and 18 refer to the following information.

According to the 2010 Census, the adult population aged 18 or greater of the United States in 2010 was 234,564,071. In 2010, a survey was conducted among a randomly chosen sample of adults aged 18 or greater in the United States about their preference to live in a warm climate or a cool climate. The table below displays a summary of the survey results.

	Warm	Cool	No preference	Total
18-35 years old	295	168	45	508
36-50 years old	246	123	41	410
51-65 years old	238	117	48	403
Greater than 65 years old	137	78	64	279
Total	916	486	198	1,600

17

Based on the data, which of the following is closest to the probability that a randomly selected adult who is 18-35 years old prefers to live in a cool climate?

A) 0.11

B) 0.30

C) 0.33

D) 0.49

18

Which of the following is closest to the difference between the percentage of adults aged 18-50 years who responded "warm" and the percentage of adults aged 51 years or greater who responded "warm"?

A) 4%

B) 5%

C) 10%

D) 18%

3

A store received a shipment of 1,000 MP3 players, 4 of which were defective. If an MP3 player is randomly selected from this shipment, what is the probability that it is defective?

A) 0.004

B) 0.04

C) 0.4

D) 4

6

What number is 20% greater than 60?

A) 50

B) 72

C) 75

D) 132

25

A data set of 27 different numbers has a mean of 33 and a median of 33. A new data set is created by adding 7 to each number in the original data set that is greater than the median and subtracting 7 from each number in the original data set that is less than the median. Which of the following measures does NOT have the same value in both the original and the new data sets?

A) Median

B) Mean

C) Sum of the numbers

D) Standard deviation

27

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?

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

B) Sample A had a higher percent of favorable responses.

C) Sample A had a larger sample size.

D) Sample A had a smaller sample size.

34

Trevor works as a sales associate at a retail store. He is normally paid 20% of the total retail value of the merchandise he sells, but he may also earn a bonus. When he earns a bonus, he is paid an additional 15% of his normal pay. During one pay period, Trevor sold $3500 in merchandise and earned a bonus. How much was he paid, in dollars, for this pay period? (Disregard the $ sign when gridding your answer.)

Questions 37 and 38 refer to the following information.

For a certain computer game, individuals receive an integer score that ranges from 2 through 10. The table below shows the frequency distribution of the scores of the 9 players in group A and the 11 players in group B.

	Score	2	3	4	5	6	7	8	9	10	Total
Score frequencies	Group A	1	1	2	1	3	0	0	1	0	9
	Group B	0	0	0	4	2	0	2	1	2	11

37

The median of the scores for group B is how much greater than the median of the scores for group A?

38

The mean of the scores for group A is 5, and the mean of the scores for group B is 7. What is the mean of the scores for the 20 players in groups A and B combined?

October 2018 Nc

18

Juan purchased an antique that had a value of $200 at the time of purchase. Each year, the value of the antique is estimated to increase 10% over its value the previous year. The estimated value of the antique, in dollars, 2 years after purchase can be represented by the expression $200a$, where a is a constant. What is the value of a ?

October 2018 C

11

List A	1	2	3	4	5	6
List B	2	3	3	4	4	5

The table above shows two lists of numbers. Which of the following is a true statement comparing list A and list B ?

A) The means are the same, and the standard deviations are different.

B) The means are the same, and the standard deviations are the same.

C) The means are different, and the standard deviations are different.

D) The means are different, and the standard deviations are the same.

12

A book was on sale for 40% off its original price. If the sale price of the book was $18.00, what was the original price of the book? (Assume there is no sales tax.)

A) $7.20

B) $10.80

C) $30.00

D) $45.00

16

In 2015 the populations of City X and City Y were equal. From 2010 to 2015, the population of City X increased by 20% and the population of City Y decreased by 10%. If the population of City X was 120,000 in 2010, what was the population of City Y in 2010?

A) 60,000

B) 90,000

C) 160,000

D) 240,000

20

The maximum value of a data set consisting of 25 positive integers is 84. A new data set consisting of 26 positive integers is created by including 96 in the original data set. Which of the following measures must be 12 greater for the new data set than for the original data set?

A) The mean

B) The median

C) The range

D) The standard deviation

21

$$0.10x + 0.20y = 0.18(x + y)$$

Clayton will mix x milliliters of a 10% by mass saline solution with y milliliters of a 20% by mass saline solution in order to create an 18% by mass saline solution. The equation above represents this situation. If Clayton uses 100 milliliters of the 20% by mass saline solution, how many milliliters of the 10% by mass saline solution must he use?

A) 5

B) 25

C) 50

D) 100

April 2019 Calc
8.D
9.C
11.B
19.B
30.D
31.129
32.760

October 2019 C
14.B
17. C
18. A
3. A
6. B
25. D
27. D
34. 805
37. 1
38.6.1 / 6/10

October 2018 NC
18. 1.21

October 2018 C
12. C
11. A
16. C
20. C
21. B