

1

1  
Data set A 1 2 3 4 5 6 7  
Data set B 1 1 2 2 3 3 4

Which of the following statements correctly compares the means of data set A and data set B?

A. The mean of each data set is 2.  
B. The mean of each data set is 4.  
C. The mean of data set A is less than the mean of data set B.  
D. The mean of data set A is greater than the mean of data set B.

2

3  
At a primate reserve, the mean age of all the male primates is 15 years, and the mean age of all female primates is 19 years. Which of the following must be true about the mean age  $m$  of the combined group of male and female primates at the primate reserve?

A)  $m = 17$   
B)  $m > 17$   
C)  $m < 17$   
D)  $15 < m < 19$

3

27  
The mean score of 8 players in a basketball game was 14.5 points. If the highest individual score is removed, the mean score of the remaining 7 players becomes 12 points. What was the highest score?

A) 20  
B) 24  
C) 32  
D) 36

4

29  
If  $x$  is the average (arithmetic mean) of  $m$  and 9,  $y$  is the average of  $2m$  and 15, and  $z$  is the average of  $3m$  and 18, what is the average of  $x$ ,  $y$ , and  $z$  in terms of  $m$ ?

A)  $m + 6$   
B)  $m + 7$   
C)  $2m + 14$   
D)  $3m + 21$

5

33  
700, 1200, 1600, 2000,  $x$

If the mean of the five numbers above is 1600, what is the value of  $x$ ?

6

35  
An online store receives customer satisfaction ratings between 0 and 100, inclusive. In the first 10 ratings the store received, the average (arithmetic mean) of the ratings was 75. What is the least value the store can receive for the 11th rating and still be able to have an average of at least 85 for the first 20 ratings?

7

5

The table below shows the high and low temperatures in Houston, Texas, during a five-day period.

Temperatures in Houston, Texas (degrees Fahrenheit)					
	Monday	Tuesday	Wednesday	Thursday	Friday
High temperature	73	56	62	75	81
Low temperature	49	37	41	54	63

What was the mean low temperature, in degrees Fahrenheit, during the five-day period?

A) 48.8  
B) 49  
C) 59  
D) 59.1

8

Questions 15 and 16 refer to the following information.

15

Facts about Four Planets

Planet	Mean distance from the Sun (millions of kilometers)	Surface gravity as a percentage of Earth's gravity
Mercury	57.9	37.8%
Venus	108.2	90.7%
Earth	149.6	100.0%
Mars	227.9	37.7%

(1 million =  $1 \times 10^6$ )

The table lists four planets and gives their mean distances from the Sun, in millions of kilometers, and their surface gravities as percentages of Earth's surface gravity. The gravity at Earth's surface, also called the acceleration due to gravity, is 9.8 meters per second per second ( $m/s^2$ ).

For an object with mass  $m$  kilograms (kg), the weight  $w$ , in newtons (N), of the object on a planet's surface can be found using the equation  $w = ma$ , where  $a$  is the acceleration due to gravity, in meters per second per second, at the planet's surface. If an object is moved from one planet to another, the object's mass does not change but its weight does.

The mean distance of Mars from the Sun is  $k$  times the mean distance of Mercury from the Sun. Which of the following is closest to the value of  $k$ ?

A) 0.254  
B) 0.394  
C) 2.54  
D) 3.94

9

32

The table above lists the ages of the first 12 United States presidents when they began their terms in office. According to the table, what was the mean age, in years, of these presidents at the beginning of their terms? (Round your answer to the nearest tenth.)

President	Age (years)	President	Age (years)
Washington	57	Jackson	62
Adams	62	Van Buren	55
Jefferson	58	Harrison	68
Madison	58	Tyler	51
Monroe	59	Polk	50
Adams	58	Taylor	65

10

35

Long jump distances (meters)

	4.2	3.8	3.2	4.0	4.3
Aditi					
Bella	$x$	4.4	3.7	3.8	4.6

Aditi and Bella each attempted the long jump five times during a track meet, and their distances are shown in the table. The mean distance for Bella's attempts was 0.3 meter greater than the mean distance for Aditi's attempts. What is the value of  $x$ ?

11

35

Ticket Prices by Row Number

Row number	Ticket price
1-2	\$25
3-10	\$20
11-20	\$15

The price of a ticket to a play is based on the row the seat is in, as shown in the table above. A group wants to purchase 10 tickets for the play.

They will purchase 3 tickets for seats in row 1.  
They will purchase 2 tickets for seats in row 3.  
They will purchase 2 tickets for seats in row 4.  
They will purchase 3 tickets for seats in row 2.

What is the average (arithmetic mean) ticket price, in dollars, for the 10 tickets? (Disregard the \$ sign when gridding your answer.)

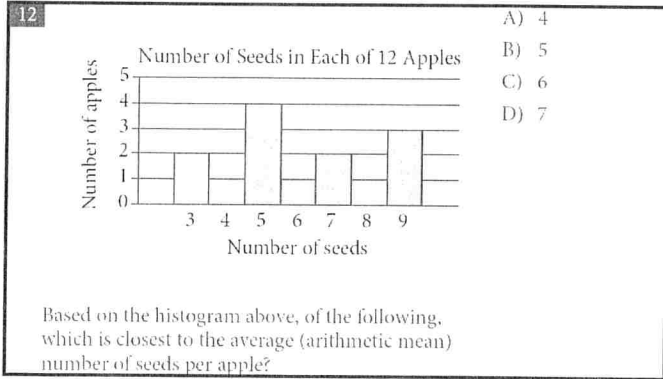
12

36

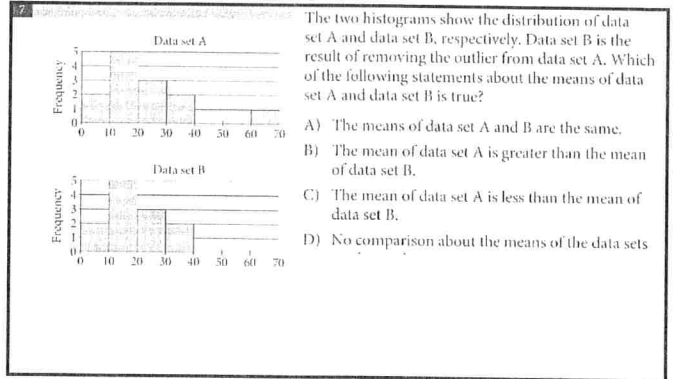
		Masses (kilograms)					
Andrew		2.4	2.5	3.6	3.1	2.5	2.7
Maria		$x$	3.1	2.7	2.9	3.3	2.8

Andrew and Maria each collected six rocks, and the masses of the rocks are shown in the table above. The mean of the masses of the rocks Maria collected is 0.1 kilogram greater than the mean of the masses of the rocks Andrew collected. What is the value of  $x$ ?

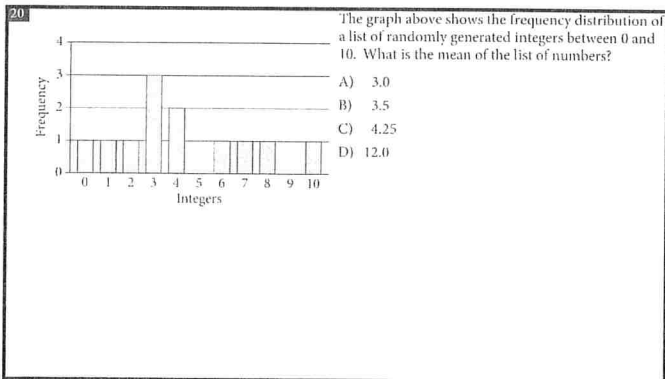
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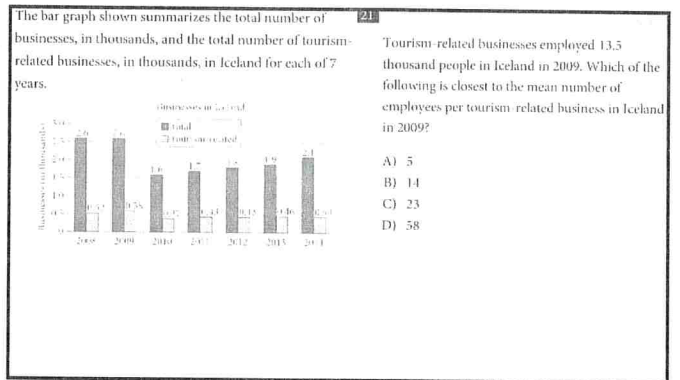
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15



16



- 1 D
- 2 D
- 3 C
- 4 B
- 5 2500
- 6 50
- 7 A
- 8 D
- 9 58.6
- 10 4.5 9/2
- 11 20
- 12 2.6 13/5
- 13 C
- 14 B
- 15 C
- 16 C
- 1