KMF Math Sprint Practice - Section 12 Medium

Question: 1

Quantity A	**Quantity B**
(4x)(3(-2x+1))	(4)(3x)(1-2x)

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 2

C_1 and C_2 are two circles in the xy-plane.

The center of circle C_1 is inside circle C_2.

Quantity A	**Quantity B**
The number of points at which C_1 and C_2 Intersect	1

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 3

The average (arithmetic mean) of n numbers is 26. One number is discarded, and the average of the remaining numbers is 25.5.

Quantity A	**Quantity B**
The discarded number	26

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 4

1, 2, 4, 8, 16.....

The first five terms of an infinite sequence are shown above. Each term after the first term is 2 times the preceding term.

n is an odd integer greater than 50.

Quantity A	**Quantity B**
The average (arithmetic mean) of the first n terms of the sequence	The median (arithmetic mean) of the first n terms of the sequence

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 5

$x+\frac{1}{x}=2$

Quantity A	**Quantity B**
$x^2+\frac{1}{x^2}$	$x^3+\frac{1}{x^3}$

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 6

$$m^2n^4=\frac{1}{16}$$

Quantity A	Quantity B
n^2	4m

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 7

Quantity A	Quantity B
The remainder when 11,999,999 is divided by 12	11

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 8

Dr. Bradley treated a different number of patients on each of the 5 working days last week, and the least number of patients treated on any of the days was 20. No patient was treated on more than one day.

Quantity A	Quantity B
The least possible total number of patients that Dr. Bradley treated on the 5 working days last week	110

- ○ Quantity A is greater.
- ○ Quantity B is greater.
- ○ The two quantities are equal.
- ○ The relationship cannot be determined from the information given.

Question: 9

Which of the following is most nearly equal to $\frac{2.5*10^6}{2.5*10^6-3.5*10^{-6}}$

- $-2.5 * 10^6$
- $-3.5 * 10^{-6}$
- $2.5 * 10^6$
- -1
- 1

Question: 10

How many different positive three-digit integers are there that have an odd hundreds digit?

- 400
- 405
- 495
- 500
- 1,000

Question: 11

An engineer draws two concentric circles on a blueprint. If the diameter of the outer circle is 6 centimeter greater than the diameter of the inner circle, how much greater, in centimeters, is the circumference of the outer circle than the circumference of the inner circle?

- 3
- 6
- 3π
- 4π
- 6π

Question: 12

Set M is composed of all 3-digit positive multiples of 7. What is the range of the numbers in set M?

- ○ 882
- ○ 885
- ○ 889
- ○ 894
- ○ 896

Question: 13

If x and y are even integers and xy=-24, what is the greatest possible value of x+y?

Question: 14

PRICE OF WOODEN BOARDS, BY BOARD WIDTH AND TYPE OF WOOD
in dollars per linear foot

Board Width (in inches)	Type of Wood		
	Maple	Oak	Poplar
4	$1.50	$1.70	$1.00
6	$2.25	$2.65	$1.60
8	$2.90	$3.20	$2.20
10	$3.75	$4.25	$2.75
12	$4.25	$5.55	$3.45

Note: All types of boards listed are 1 inch thick.

The top surface of a certain 1-inch-thick oak board is 8 inches wide and has an area of 960 square inches. What is the price of this board? (1 foot=12 inches)

- ○ $26.40
- ○ $29.00
- ○ $32.00
- ○ $34.80
- ○ $40.00

Question: 15

PRICE OF WOODEN BOARDS, BY BOARD WIDTH AND TYPE OF WOOD
in dollars per linear foot

Board Width (in inches)	Type of Wood		
	Maple	Oak	Poplar
4	$1.50	$1.70	$1.00
6	$2.25	$2.65	$1.60
8	$2.90	$3.20	$2.20
10	$3.75	$4.25	$2.75
12	$4.25	$5.55	$3.45

Note: All types of boards listed are 1 inch thick.

For the 6-inch-wide boards listed, which of the following is closest to the ratio of the price per linear foot of the least expensive type of board to the price per linear foot of the most expensive type of board?

- 1 to 2
- 1 to 3
- 3 to 4
- 3 to 5
- 3 to 6

Question: 16

PRICE OF WOODEN BOARDS, BY BOARD WIDTH AND TYPE OF WOOD
in dollars per linear foot

Board Width (in inches)	Type of Wood		
	Maple	Oak	Poplar
4	$1.50	$1.70	$1.00
6	$2.25	$2.65	$1.60
8	$2.90	$3.20	$2.20
10	$3.75	$4.25	$2.75
12	$4.25	$5.55	$3.45

Note: All types of boards listed are 1 inch thick.

The price of one maple board that is 8 inches wide and n feet long is $1.50 less than the price of 2 maple boards that are each 4 inches wide and n feet long. What is the value of n?

- 8
- 10
- 12
- 15
- 20

Question: 17

The sales tax on clothing items in Country A is 25 percent of the purchase price of the item, and the sales tax on clothing items in Country B is 20 percent of the purchase price of the item. If the two countries have the same currency and if the price of a certain clothing item is the same in both countries, what percent greater is the amount of the sales tax on the clothing item purchased in Country A than the amount of sales tax on the clothing item purchased in Country B?

_____%

Question: 18

Frequency	Temperature(°F)
3	68
0	69
5	70
2	71
1	72

The daily high temperature, in degrees Fahrenheit, in a certain city were recorded for 11 consecutive days. The table above shows the frequency distribution of the recorded temperatures. Which of the following statements are true?

Indicate all such statements.

- ☐ The median and the average (arithmetic mean) of the recorded temperatures are equal
- ☐ The median and the mode of the recorded temperatures are equal
- ☐ The range of the recorded temperatures is 4 degrees Fahrenheit

Question: 19

What is the length of an edge of the smallest solid cube that can be made by placing together solid rectangular blocks of size 7 by 6 by 3?

- ○ 126
- ○ 42
- ○ 21
- ○ 16
- ○ 14

Question: 20

When a shipment of dinner plates arrived at a restaurant supply store, $\frac{1}{2}$ of the plates were chipped, $\frac{2}{3}$ were cracked, and $\frac{1}{3}$ were both chipped and cracked. If 80 of the plates were neither chipped nor cracked, how many plates were in the shipment?

- ○ 180
- ○ 240
- ○ 336
- ○ 480
- ○ 522