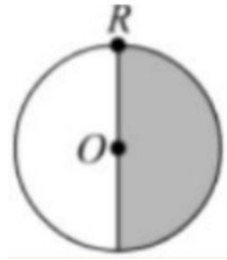


KMF Math Sprint Practice -

Section 8 Medium

Question: 1



The area of the shaded semicircular region is 64π .

Quantity A

The length of radius OR

Quantity B

10

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

Question: 2

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

The average (arithmetic mean) of the first n terms of the sequence

Quantity B

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: 3

k and n are consecutive positive odd integers.

Quantity A

The least common multiple of k and n

Quantity B

kn

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

Question: 4

$n > 10,000$

Quantity A

The thousands digit of $\frac{n}{8}$

Quantity B

7

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

Question: 5

$1 < 2x+1 < 3$

Quantity A

$(x^2-5)-(x-5)$

Quantity B

0

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

Question: 6

Quantity A

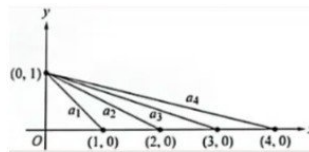
The median number of days per month for a year in which February has 28 days

Quantity B

The median number of days per month for a year in which February has 29 days

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

Question: 7



In the sequence a_1, a_2, a_3, \dots , the n^{th} term is the distance in the xy -plane between $(0, 1)$ and $(n, 0)$ for each positive integer n . The figure shows the first four terms of the sequence.

Quantity A

a_{20}

Quantity B

$\sqrt{401}$

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

Question: 8

$$|x| < 1 - x$$

Quantity A

x

Quantity B

0

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

Question: 9

The recreation director at a local youth club surveyed the members to determine interest in two activities—a hiking trip and a softball game. Of the members surveyed, 60 percent were interested in the hiking trip and 75 percent were interested in the softball game. Of those who were interested in the softball game, $\frac{2}{3}$ were also interested in the hiking trip. What percent of the members surveyed were not interested in either of the two activities?

- ☐ 10%
- ☐ 15%
- ☐ 25%
- ☐ 35%
- ☐ 40%

Question: 10

Stores A, B, C, and D sell a certain model of printer for the same retail price. The retail price of the printer is discounted by 10 percent, 20 percent, 16 percent, and 12 percent at Stores A, B, C, and D, respectively. If the retail price of the printer is at least \$100, which of the following statements about the discounted prices at the four stores must be true?

Indicate all such statements.

- ☐ The range is at least \$10.
- ☐ The median is at least \$90.
- ☐ The average (arithmetic mean) is at least \$80.

Question: 11

The total revenue that firm P receives from the sale of a particular item is determined by multiplying the number of the items it sells by the price of the item. If the price of the item is to be decreased by 20 percent, by what percent must the number of the items sold increase to keep the total revenue unchanged?

- ☐ 15%
- ☐ 20%
- ☐ 25%
- ☐ 30%
- ☐ 35%

Question: 12

$R=\{3, 4, 7, 9\}$

$T=\{2, 5, 8\}$

If a number r is to be chosen from set R and a number t is to be chosen from set T , what is the range of all possible values of $\frac{t}{r}$?

- ☐ $\frac{2}{9}$
- ☐ $\frac{13}{9}$
- ☐ $\frac{22}{9}$
- ☐ $\frac{11}{3}$
- ☐ $\frac{14}{3}$

Question: 13

At a furniture store on Monday, the retail price of a table was n dollars. On Wednesday that week, the retail price of the table was reduced to \$56. On Friday that week, the price of table was reduced again to 25 percent less than the price on Wednesday. If the ratio of n to the price of the table on Friday is 32 to 21, what is the value of n ?

Question: 14

Weekly Rental Rates for Realtor M’s Summer Houses on Island X

Location	Number of Bedrooms in House		
	2 Bedrooms	3 Bedrooms	4 Bedrooms
Oceanside	\$800	\$900	\$1,000
Bayside	\$600	\$700	\$800
Inland	\$500	\$600	\$700

What is the range of all the weekly rental rates in the table?

- ☐ \$100
- ☐ \$200
- ☐ \$300
- ☐ \$400
- ☐ \$500

Question: 15

Weekly Rental Rates for Realtor M's Summer Houses on Island X

Location	Number of Bedrooms in House		
	2 Bedrooms	3 Bedrooms	4 Bedrooms
Oceanside	\$800	\$900	\$1,000
Bayside	\$600	\$700	\$800
Inland	\$500	\$600	\$700

A group of 10 couples plans to rent bayside summer houses on Island X from Realtor M for a certain week. The total rental cost for the houses will be evenly distributed among the 10 couples, and each couple will have their own bedroom. If Realtor M has at least three bayside summer houses of each type available that week, what is the least possible rental cost per couple?

- ☐ \$400
- ☐ \$300
- ☐ \$240
- ☐ \$220
- ☐ \$190

Question: 16

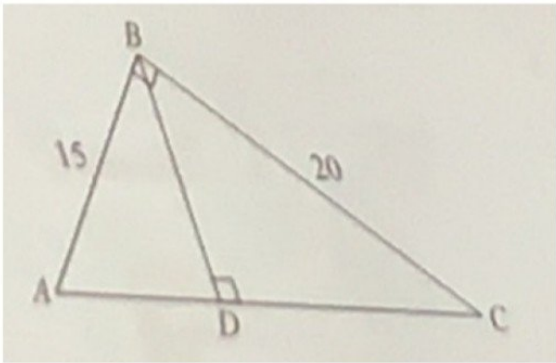
Weekly Rental Rates for Realtor M's Summer Houses on Island X

Location	Number of Bedrooms in House		
	2 Bedrooms	3 Bedrooms	4 Bedrooms
Oceanside	\$800	\$900	\$1,000
Bayside	\$600	\$700	\$800
Inland	\$500	\$600	\$700

If Realtor M's inland summer houses on Island X generate a total weekly rental income of \$8,800 when they are all rented, what is the greatest possible number of inland 4-bedroom summer houses that Realtor M can have?

- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12

Question: 17



In the figure shown, what is the length of line segment BD?

Question: 18

What percent of $\frac{1}{2}$ is $\frac{2}{3}$?

☐ $33\frac{1}{3}\%$

☐ 75%

☐ $116\frac{2}{3}\%$

☐ $133\frac{1}{3}\%$

☐ 175%

Question: 19

If $x < y$, which of the following must be true?

☐ $2x < y$

☐ $2x > y$

☐ $x^2 < y^2$

☐ $2x - y < y$

☐ $2x - y < 2xy$

Question: 20

In the rectangular coordinate system, the point (2, 1) is on a circle whose center is (-2, -1). What is the circumference of the circle?

☐ 12π

☐ 20π

☐ $2\pi\sqrt{3}$

☐ $2\pi\sqrt{5}$

☐ $4\pi\sqrt{5}$