GRE Quant School

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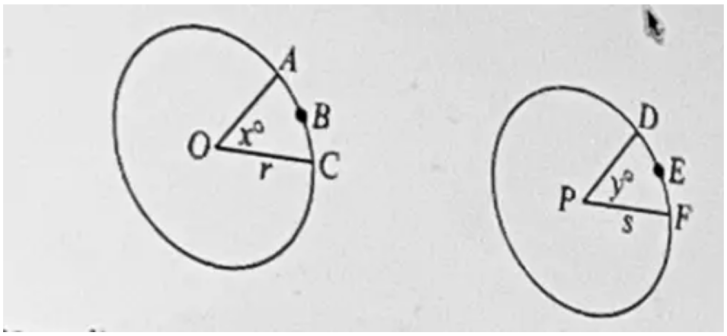
KMF Math Sprint Practice - Section 16 Hard

Question: 1



The circle on the left has radius r and center O, and the circle on the right has radius s and center P. The lengths of arcs ABC and DEF are both equal to 3, and $r < s < 3$.

Quantity A	Quantity B
x	y

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

Question: 2

Q is a set of 36 different numbers with the property that if p is in Q, then -p is also in Q. The number 25 is in Q.

Quantity A	Quantity B
The range of the numbers in Q	40

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

Question: 3

The circumference of circle C is equal to the perimeter of square S.

Quantity A	Quantity B
The ratio of the area enclosed by C to the area enclosed by S	1

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

Question: 4

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: 5

In the xy-plane, S is the set of all points (c, d) for which c and d are both integers.

Quantity A	Quantity B
The number of points in S that are a distance of 2 units from the point (7, 5)	4

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

Question: 6

$x^2=4$ and $y^2=1$

Quantity A	Quantity B
$(x-y)^2$	3

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

Question: 7

a and b are integers, and $a^2+b^2=100$.

Quantity A	**Quantity B**
a+b	10

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

Question: 8

A certain baker sent 280 loaves of bread to a grocery store. The baker packed the loaves in two types of boxes. The smaller type of box could hold up to 8 loaves, while the larger type of box could hold up to 12 loaves. When the baker sent the loaves, all the boxes were full and there were equal numbers of both types of boxes. What fraction of the loaves of bread sent to the grocery store were packed in the smaller boxes?

- ⬭ $\frac{1}{3}$
- ⬭ $\frac{2}{5}$
- ⬭ $\frac{1}{2}$
- ⬭ $\frac{3}{5}$
- ⬭ $\frac{2}{3}$

Question: 9

The electric power P in a resistor is directly proportional to the square of the electric current I flowing through the resistor. For a given resistor, if the power is 18 watts when the current is 3 amperes, what is the power, in watts, when the current is 4 amperes?

- ⬭ 24
- ⬭ 30
- ⬭ 32
- ⬭ 36
- ⬭ 64

Question: 10

In a certain sequence, each term after the first is equal to the preceding term multiplied by $-\frac{1}{2}$. If the 200th term is positive, which of the following statements must be true?

Indicate all such statements.

- ☐ The 10^{th} term is positive
- ☐ The sum of any 2 consecutive terms is positive
- ☐ The product of any 3 consecutive terms is positive

Question: 11

What`s the remainder when 3^{82} is divided by 5?

- ⬭ 0
- ⬭ 1
- ⬭ 2
- ⬭ 3
- ⬭ 4

Question: 12

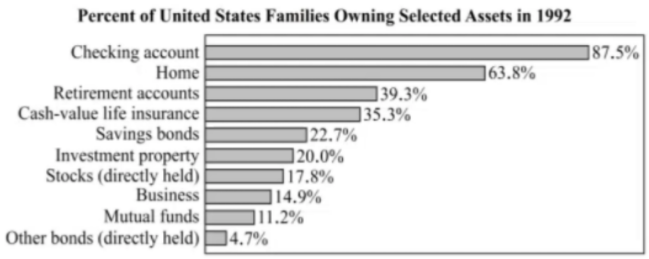
The average (arithmetic mean) of a, b, c and d is 7, and 2(a+b+c)=b+c+d. What is the average of the seven numbers a, a, a, b, b, c and c?

- $3\frac{1}{2}$
- 4
- $4\frac{2}{3}$
- 7
- $9\frac{1}{3}$

Question: 13

The retail price of each item in a certain store consists of the cost of the item, a profit that is 10 percent of the cost, and an overhead that is 30 percent of the cost. If an item in the store has a retail price of $21, what is the cost of the item?

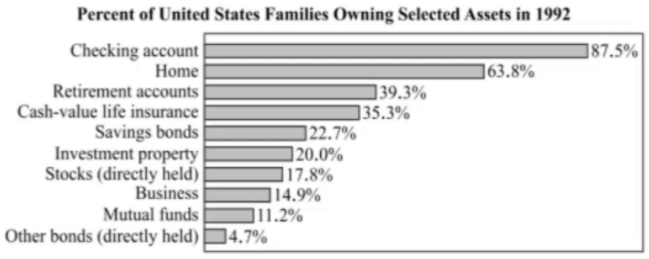
Question: 14



From 1989 to 1992, there was a 10 percent increase in the percent of families that owned directly held stocks. Which of the following is closest to the percent of families who owned directly held stocks in 1989?

- 1.8%
- 15.0%
- 15.8%
- 16.2%
- 19.6%

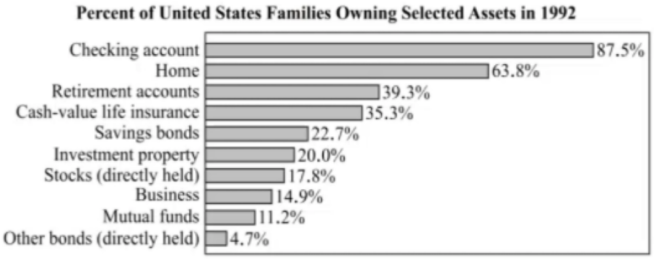
Question: 15



If 38.7 percent of the families who owned a home owed money on a home mortgage loan or home equity loan, or both, approximately what percent of United States families owned homes free of both home mortgage and home equity loans?

- 65%
- 40%
- 30%
- 25%
- 18%

Question: 16



In 1992, if 7.9 percent of the families in the survey owned both savings bonds and mutual funds, what percent owned neither savings bonds nor mutual funds?

- 41.8%
- 58.2%
- 74.0%
- 78.3%
- 92.1%

Question: 17

In the xy-plane, the point (3p, 5p-1) lies on the line with equation $y=-\frac{1}{2}x-\frac{5}{3}$. What is the value of p?

Give your answer as a fraction.

Question: 18

A committee of 4 people consisting of 2 men and 2 women is to be selected from 5 sets of fraternal twins, where each set consists of one man and one woman. If only 1 person from each set of twins may be selected for the committee, what is the total number of distinct committees that can be formed?

- 5
- 10
- 20
- 30
- 40

Question: 19

Which of the following is an odd integer?

- $\sqrt{\frac{1}{(3^{-4})(5^{-2})}}$
- $\sqrt{\frac{1}{(3^{-3})(2^{-2})}}$
- $\sqrt{\frac{1}{(3^{4})(5^{-2})}}$
- $\frac{1}{(2^{-5})(3^{-3})}$
- $\frac{1}{(3^{-1})+(5^{-2})}$

Question: 20

A hexagon with sides of equal length and interior angles of equal measure is inscribed in a circle. If the perimeter of the hexagon is 12, what is the perimeter of an equilateral triangle inscribed in the same circle?

- 6
- 9
- $2\sqrt{3}$
- $3\sqrt{3}$
- $6\sqrt{3}$