GRE数学

模考3-Section 2

MAKE IT EASY

1. The dollar value of a certain painting in 1980 was 30 percent greater than its dollar value in 1976. The dollar value of the painting in 1984 was 82 percent greater than its dollar value in 1976.

Quantity A: The percent increase in the dollar value of the painting from 1980 to 1984
Quantity B: 52%

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

2. x<y

x and y are integers

Quantity A: The number of integers between x and y, inclusive
Quantity B: y-x+1

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

3. x and y are positive.
a is 80 percent of x.
b is 70 percent of y.

Quantity A: The average (arithmetic mean) of a and b
Quantity B: 0.75(x+y)/2

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

4.

Lines k and l lie in the xy-plane and are parallel.
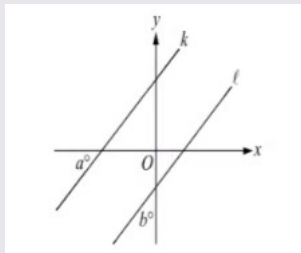
Quantity A: a
Quantity B: b

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

5.

In the figure, point A is the center of the circle and points B and D lie on the circle. The length of DC is one-half of the length of AD.

Quantity A: The area of sector ABD
Quantity B: The area of triangle ABC

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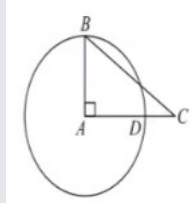D. The relationship cannot be determined from the information given.

6. Set S contains between 80 and 90 elements.

Quantity A: The number of subsets of S that contain 50 elements
Quantity B: The number of subsets of S that contain 60 elements

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

7. Quantity A: The remainder when 7^{22} is divided by 5

Quantity B: 4

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

8. A certain state is proposing an increase in the sales tax from 5 percent to 5.5 percent. Last month, under the current sales tax rate of 5 percent, the state received $1,500,000,000 in sales tax revenue. How many more dollars would the state have received in sales tax revenue last month if the tax rate had been 5.5 percent?

A. $6,500,000
B. $15,000,000
C. $65,000,000
D. $150,000,000
E. $650,000,000

9. The price of a apples is d dollars. At this rate, what is the price of a+700 apples, in dollars?

A.   (700d+ad)/a
B.   (ad+d)/700a
C.   (700d+a)/d
D. $\frac{700a+a^2}{d}$
E.   (700ad+d)/a

10.
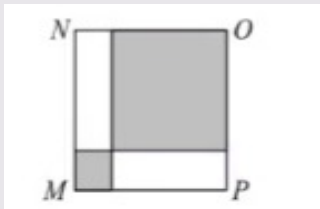
In square MNOP shown, the two shaded square regions have areas in the ratio 9 to 1. If square region MNOP has area 144, what is the area of each of the two unshaded rectangular regions?

A.   9
B.   16
C.   27
D.   36
E.   48

11. Which of the following statements are true for all integers a and b?
Indicate <u>all</u> such statements.

A. $(-1)^{ab} = (-1)^a(-1)^b$
B. $(-1)^{a+b} = (-1)^a + (-1)^b$
C. $(-1)^{a+b} = (-1)^a(-1)^b$

12. a_1, a_2, a_3, …, a_n, …
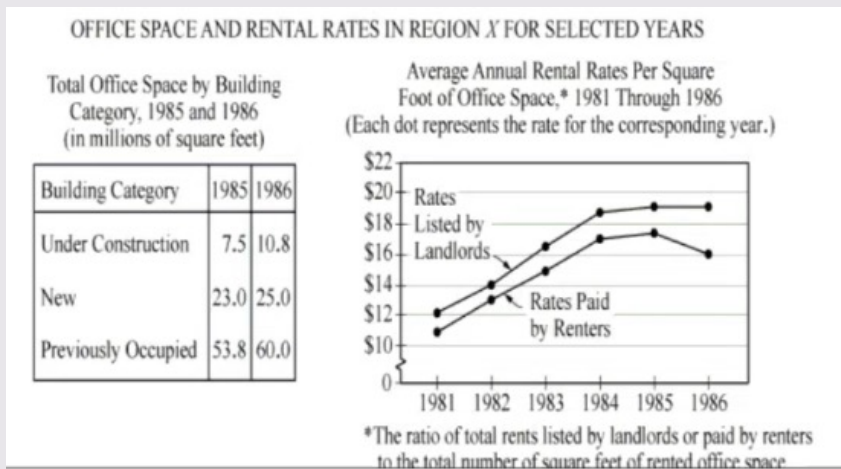
In the sequence above, $a_1=2$, $a_2=5$, and $a_n=\dfrac{a_n-1}{a_n-2}$ for all integers n greater than 2. What is the value of a_{135}

A.   1/5
B.   2/5
C.   1/2
D.   2
E.   5/2

13. From which of the following can it be concluded that $0<x<1$?

A. $x<1$
B. $x^2<1$
C. $x^2<x$
D. $x^3<x^2$
E. $x^5<x^3$

14.

OFFICE SPACE AND RENTAL RATES IN REGION X FOR SELECTED YEARS

Total Office Space by Building Category, 1985 and 1986 (in millions of square feet)

Building Category	1985	1986
Under Construction	7.5	10.8
New	23.0	25.0
Previously Occupied	53.8	60.0

Average Annual Rental Rates Per Square Foot of Office Space,* 1981 Through 1986 (Each dot represents the rate for the corresponding year.)

*The ratio of total rents listed by landlords or paid by renters to the total number of square feet of rented office space
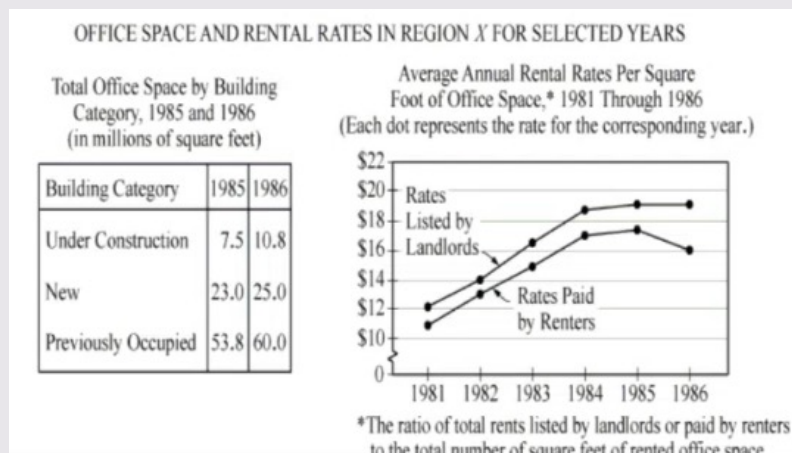
In which year was the difference between the average annual rental rate listed by landlords and that paid by renters greatest?

A.   1982
B.   1983
C.   1984
D.   1985
E.   1986
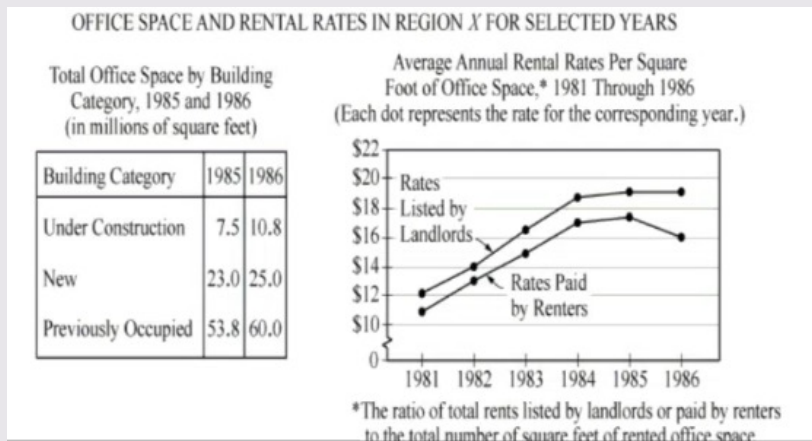
15.

OFFICE SPACE AND RENTAL RATES IN REGION X FOR SELECTED YEARS

Total Office Space by Building Category, 1985 and 1986 (in millions of square feet)

Building Category	1985	1986
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New	23.0	25.0
Previously Occupied	53.8	60.0

Average Annual Rental Rates Per Square Foot of Office Space,* 1981 Through 1986 (Each dot represents the rate for the corresponding year.)

*The ratio of total rents listed by landlords or paid by renters to the total number of square feet of rented office space.

From 1985 to 1986, what was the percent increase in total office space for buildings under construction?

A. 31%
B. 33%
C. 38%
D. 44%
E. 69%

16.

OFFICE SPACE AND RENTAL RATES IN REGION *X* FOR SELECTED YEARS

Total Office Space by Building Category, 1985 and 1986 (in millions of square feet)

Building Category	1985	1986
Under Construction	7.5	10.8
New	23.0	25.0
Previously Occupied	53.8	60.0

Average Annual Rental Rates Per Square Foot of Office Space,* 1981 Through 1986 (Each dot represents the rate for the corresponding year.)

*The ratio of total rents listed by landlords or paid by renters to the total number of square feet of rented office space.

In 1986 the total <u>rented</u> office space was equal to 90 percent of the total office space in new and previously occupied buildings. Approximately what was the total amount that renters paid to rent office space that year?

A. $1,220 million
B. $1,360 million
C. $1,450 million
D. $1,580 million
E. $1,620 million

17. Points B,C,and D lie on line segment AE such that D is the midpoint of AE, B is the midpoint of line segment AD, and C is the midpoint of line segment BD. If the length of CE is 22.5, what is the length of AC?

_____

18. During a certain month, 20 percent of all the electricity used by a household was used by the water heater. The cost per kilowatt-hour of the electricity used by the water heater was half the cost per kilowatt-hour of the rest of the electricity used. For that month, the cost of the electricity used by the water heater was what fraction of the cost of the electricity used by the household?

A.   1/20
B.   1/9
C.   1/8
D.   1/5
E.   1/3

19.
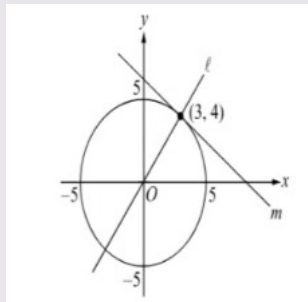
In the xy-plane shown, the circle is centered at the origin. Line l passes through the origin and the point (3,4). Line m is tangent to the circle at the point (3,4). What is the x-intercept of line m?

A. 6
B. 20/3
C. 22/3
D. 8
E. 25/3

20. Larry and Tony work for different companies. Larry's salary is the 90th percentile of the salaries in his company, and Tony's salary is the 70th percentile of the salaries in his company.

Which of the following statements <u>individually</u> provide(s) sufficient additional information to conclude that Lary's salary is higher than Tony's salary?
Indicate <u>all</u> such statements.

A. The average (arithmetic mean) salary in Larry's company is higher than the averages salary in Tony's company.
B. The median salary in Lany's company is equal to the median salary in Tony's company.
C. The 80th percentile salary in Lary's company is higher than the 70th percentile salary in Tony's company.