# GRE Quant School

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## KMF Math Sprint Practice - Section 21 Hard

Question: 1

Square ABCD is inscribed in a circle of radius 3.

| Quantity A | Quantity B |
| --- | --- |
| The area of square region ABCD | 20 |

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

Question: 2

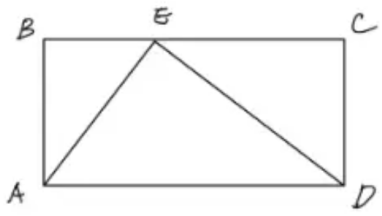
Six more than $\frac{1}{2}$ of the number r equals to 14.

Three fewer than the square root of the number w equals 1.

| Quantity A | Quantity B |
| --- | --- |
| r | w |

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

Question: 3




ABCD is a rectangle.

| **Quantity A** | **Quantity B** |
| --- | --- |
| The combined areas of the triangular regions ABE and ECD | The area of triangular region AED |

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

Question: 4

a and b are consecutive positive integers and a is less than b.

| **Quantity A** | **Quantity B** |
| --- | --- |
| $a^b$ | $b^a$ |

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

Question: 5

Today a certain machine is worth 20 percent less than it was worth a year ago, and it is worth x percent less than it was worth two years ago. A year ago the machine was worth 20 percent less than it was worth two years ago.

| Quantity A | Quantity B |
| --- | --- |
| x | 40 |

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

Question: 6

x, y, and z are consecutive odd integers.

| Quantity A | Quantity B |
| --- | --- |
| x+y+z | xyz |

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

Question: 7

The average (arithmetic mean) of the six numbers a, b, c, d, e, and f is x. The average of c, d, e, and f is also x.

| **Quantity A** | **Quantity B** |
| --- | --- |
| a+b | 2x |

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

Question: 8

It costs d dollars to buy t thumbtacks. At this rate, what is the cost of t+2,500 thumbtacks, in dollars?

- $\frac{2500t+t^2}{d}$
- $\frac{2500t+t}{d}$
- $\frac{td+d}{2500t}$
- $\frac{2500td+d}{t}$
- $\frac{2500d+td}{t}$

Question: 9

A certain device is a rectangular box with dimensions 20 inches by 5 inches by 6 inches. If the device has mass 17 kilograms, then the device`s density is approximately how many kilograms per cubic foot? (Density is the ratio of mass to volume, and 1 foot=12 inches.)

- ⬭ 20
- ⬭ 30
- ⬭ 40
- ⬭ 50
- ⬭ 60

## Question: 10

Machine X, working at a constant rate, can perform a job in T hours. Machine Y, working at a different constant rate, can perform the same job in 3T hours. If the two machines work simultaneously at their respective constant rates, how many hours will it take for the machines to perform the job, in terms of T?

- ⬭ $\frac{T}{2}$
- ⬭ $\frac{T}{3}$
- ⬭ $\frac{2T}{3}$
- ⬭ $\frac{3T}{4}$
- ⬭ $\frac{4T}{5}$

## Question: 11

If p=$r^n$, where r is a prime number, and n is a positive integer, then define p△=p*n. For example, 25=$5^2$, then 25△=25*2=50. Therefore, what is the value of 32△?

## Question: 12

For a list of 10 different numbers, the average (arithmetic mean) of the numbers is 22 and the range is 50. If both the least number and the greatest number are removed from the list, then the average of the remaining numbers is 20. What is the greatest number in the list of 10 numbers?

- ⬭ 55
- ⬭ 52
- ⬭ 45
- ⬭ 42
- ⬭ 37

## Question: 13

A circular walkway with a uniform width and an inner diameter of 60 feet is to be built. If the length of the outer edge of the walkway must be between 100π feet and 200π feet, which of the following values could be the width, in feet, of the walkway?

Indicate all such values.

- ☐ 30
- ☐ 60
- ☐ 90
- ☐ 120

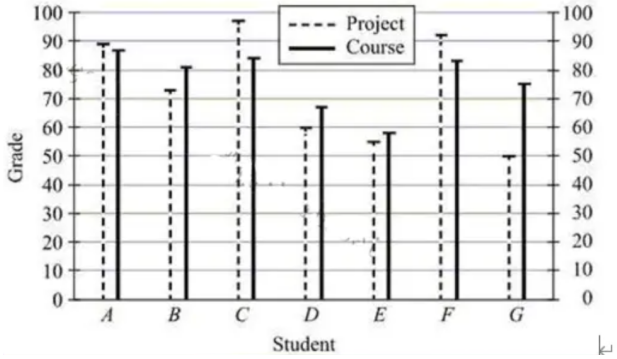
## Question: 14

**Performance of Seven Students in a Journalism Course**

**Reading and Writing Statistics**

| Student | Number of Articles Read | Number of Words Read (in thousands) | Number of Articles Written | Number of Words Written (in thousands) |
|---|---|---|---|---|
| *A* | 31 | 27.9 | 5 | 6.4 |
| *B* | 19 | 22.5 | 9 | 8.2 |
| *C* | 27 | 24.4 | 8 | 9.6 |
| *D* | 28 | 28.4 | 8 | 7.5 |
| *E* | 17 | 23.6 | 7 | 6.0 |
| *F* | 40 | 31.0 | 10 | 9.1 |
| *G* | 30 | 26.4 | 11 | 9.9 |

**Project Grade and Course Grade**




Which student wrote the longest articles as measured by the average (arithmetic mean) number of words per article?

- A
- B
- C
- F
- G

Question: 15

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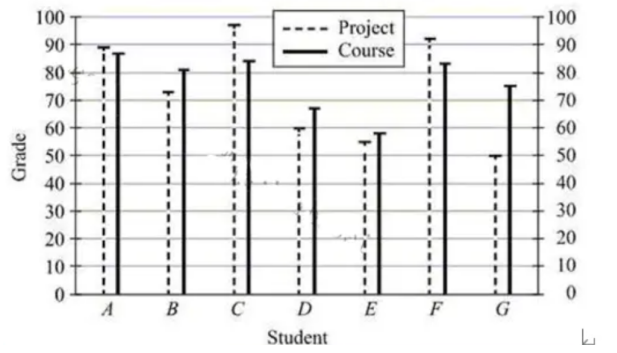


The greatest number of words read by a student exceeded the least number of words read by a student by approximately what percent?

- 9%
- 18%
- 27%
- 33%
- 38%

Question: 16

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**Reading and Writing Statistics**

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| *B* | 19 | 22.5 | 9 | 8.2 |
| *C* | 27 | 24.4 | 8 | 9.6 |
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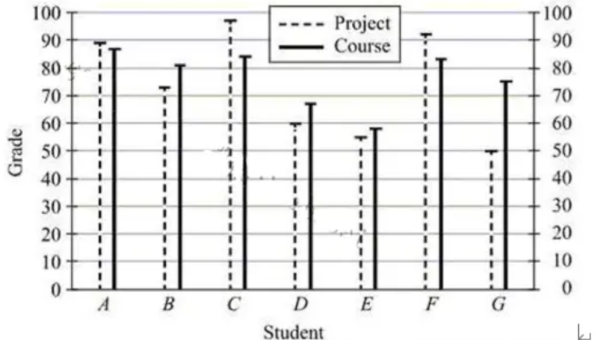
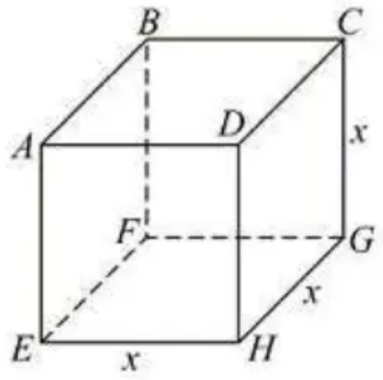



Of all the articles read, students C, D, and E read the same 2 articles. In addition to these 2 articles, C and D read the same 10 articles, C and E read the same 5 articles, and D and E read the same 7 articles. How many articles were read by at least one of the three students, C, D, and E?

- ○ 42
- ○ 44
- ○ 46
- ○ 48
- ○ 50

Question: 17




The cube shown above has edges of length x, where x is an integer. The length of diagonal AG (not shown) is 10.39, to the nearest 0.01. What is the value of the integer x?

x=_____

Question: 18

k, m, and p are integers.

If k and m are negative integers, which of the following must be negative integers?

Indicate all such integers.

- ☐ $m - p^2$
- ☐ (k-1)(p+1)
- ☐ kmp

Question: 19

What is the units digit of $(4^{32} - 3^{32})$?

Question: 20

If the probability that event R will occur is 0.75, and the probability that event M will occur is 0.58, which of the following is equal to the maximum probability that both events will occur?

- ○ 0.58
- ○ 0.75
- ○ 0.58+0.75
- ○ $\frac{(0.58+0.75)}{2}$
- ○ 0.58+0.75-(0.58)(0.75)