

GRE QUANT PRACTICE PAPER

1.

Two integers a and b are chosen at random from a set $A = \{2, 5, 7, 8\}$, where a and b are both positive integers.

| Quantity A | Quantity B |
|--|------------|
| Probability that the product of a and b can be written in $a^2 - b^2$ form | 1313 |

- 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.

In a sequence, the sum of four consecutive odd numbers is equal to the sum of three consecutive even numbers. Also, middle term of the even numbers is greater than 101 but less than 200.

| Quantity A | Quantity B |
|-----------------------------------|------------|
| Number of such possible sequences | 12 |

- 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.

z is a positive integer.

$$x = 12y + 25$$

$$y = 7z + 5$$

| Quantity A | Quantity B |
|------------|------------|
|------------|------------|

The remainder when x is divided by 42

The remainder when y is divided by 2

- A) The quantity in Column A is greater.
- B) The quantity in Column B is greater.
- C) The two quantities are equal.
- D) The relationship cannot be determined from the information given.

4.

A right circular cylinder has volume 24π

| Quantity A | Quantity B |
|----------------------------|----------------------------|
| The height of the cylinder | The radius of the cylinder |

- 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.

a is a prime number

b is a positive factor of $a-1$

| Quantity A | Quantity B |
|------------|---|
| a^2 | The product of b and the least non-prime integer greater than a |

- 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.

$(3^p)^8 = 81$

| Quantity A | Quantity B |
|------------|------------|
| p | 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

7.

$$xz=5 \quad xz=5$$

| Quantity A | Quantity B |
|----------------|------------|
| $x+zx-zx+zx-z$ | 3232 |

- 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.

$$-5 \text{ is the solution of } (x^2+x-k=5)$$

| Quantity A | Quantity B |
|------------|------------|
| k | 20 |

- 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

9.

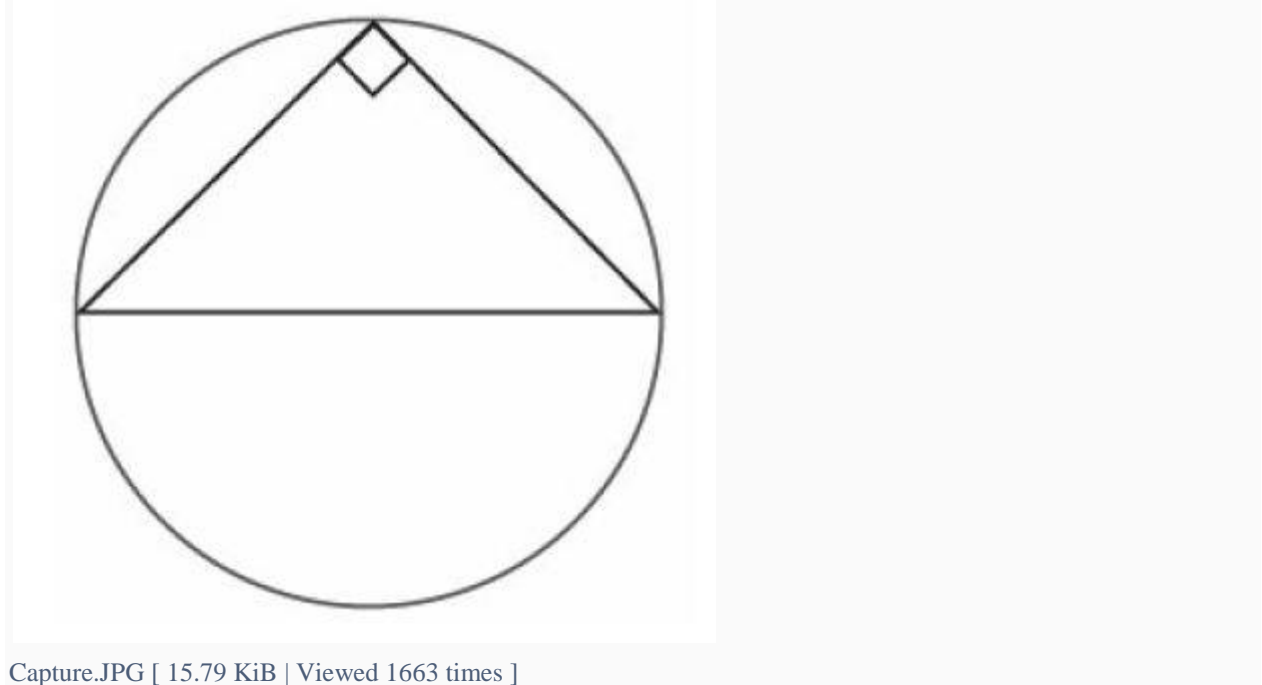
The selling price of an exercise bike represents a 25% markup from its original cost to the merchant

| Quantity A | Quantity B |
|--|------------|
| The % the markup is of the selling price | 20% |

- 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

10.

Attachment:



In the figure above, a right triangle is inscribed in a circle with an area of (16π) (cm^2) .

| Quantity A | Quantity B |
|--|------------|
| The hypotenuse of the triangle, in centimeters | $\sqrt{8}$ |

- 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.

11.

At his regular hourly rate, Don had estimated the labor cost of a repair job as \$336 and he was paid that amount. However, the job took 4 hours longer than he had estimated and, consequently, he earned \$2 per hour less than his regular hourly rate. What was the time Don had estimated for the job, in hours?

- (A) 28
 (B) 24
 (C) 16
 (D) 14
 (E) 12

12.

If $x + y = 8z$, then which of the following represents the average (arithmetic mean) of x , y , and z , in terms of z ?

- (A) $2z + 1$
 (B) $3z$
 (C) $5z$
 (D) $z/3$
 (E) $3z/2$

13.

If $x + y = 8z$, then which of the following represents the average (arithmetic mean) of x , y , and z , in terms of z ?

- (A) $2z + 1$
 (B) $3z$
 (C) $5z$
 (D) $z/3$
 (E) $3z/2$

14.

If the operation $x \wedge y$ is defined for all x and y by the equation $x \wedge y = \frac{x^2y}{2}$, then $(2 \wedge -1) \wedge (-2 \wedge 1) =$

- (A) -4
 (B) -2
 (C) 2

- (D) 4
 (E) 8

15.

If a certain toy store's revenue in November was $\frac{2}{5}$ of its revenue in December and its revenue in January was $\frac{1}{4}$ of its revenue in November, then the store's revenue in December was how many times the average (arithmetic mean) of its revenues in November and January?

- (A) $\frac{1}{4}$
 (B) $\frac{1}{2}$
 (C) $\frac{2}{3}$
 (D) 2
 (E) 4

16.

When w is divided by x , the quotient is y and the remainder is z . Which of the following expressions is equal to y ?

- (A) $\frac{w-z}{x}$
 (B) $\frac{w-z}{xw}$
 (C) $\frac{z}{x(z-w)}$
 (D) $\frac{w-z}{x}$
 (E) $\frac{z-w}{x}$

17.

If the average of m and $\sqrt{(x+y)^2 - x^2 - y^2}$, what is the value of m ?

- (A) $\frac{y}{x}$
 (B) $\frac{y}{x+y}$
 (C) $\frac{(x-y)(x+y)}{x+y}$
 (D) $\frac{y^2}{x}$
 (E) $\frac{y^2}{x+y}$

18.

If $b = -2$ and $\frac{a}{b-c} = 1$, which of the following is NOT a possible value of c ?

- (A) -2
 (B) -1
 (C) 0

- (D) 1
 (E) 2

19.

(v, w, x, y, z)

An arithmetic sequence is a sequence in which each term after the first is equal to the sum of the preceding term and a constant. If the list of numbers shown above is an arithmetic sequence, which of the following must also be an arithmetic sequence?

- I. $(2v, 2w, 2x, 2y, 2z)$
 II. $(v + 2, w + 2, x + 2, y + 2, z + 2)$
 III. $(\sqrt{v}, \sqrt{w}, \sqrt{x}, \sqrt{y}, \sqrt{z})$

- (A) I only
 (B) II only
 (C) III only
 (D) I and II
 (E) II and III

20.

Few marbles are put into 8 pouches such that each pouch contains at least one marble. At the most 4 pouches can contain the same number of marbles, and no two of the remaining pouches can contain an equal number of marbles. What is the least possible number of marbles in the 8 pouches?

- (A) 8
 (B) 17
 (C) 18
 (D) 24
 (E) 30

21.

The figure above shows a solid with thickness of 1, a square base and a square top, and 4 identical trapezoids as side surfaces. What is the surface area of the solid?

Consider all that apply

- A. 38

B.

50

C. $342\sqrt{342}$

D. $34+42\sqrt{34+42}$

E. $34+162\sqrt{\quad}$

22.

A worker at a recycling factory needs to produce 100 cm^3 of aluminum for an order. Which of the following solid aluminum items alone would allow the worker to meet his or her goal?

Indicate *all* possible values.

A. hemisphere with a diameter 7.5 cm

B. A right cylinder with radius 4 cm and a height 2 cm

C. A cube with side length 4.5 cm

D. A right rectangular prism with width 5 cm, length 7 cm, and height 3 cm

E. A sphere with radius 3 cm

23.

In the equation, $(X4)_n - (Y7)_n = p(X4)_n - (Y7)_n = p$, n is a positive integer, and X and Y can be any integer between 1 and 9, meaning that $X4$ and $Y7$ are both two-digit integers. What are all the possible values of the units digit of p if $p > 0$?

[A] 1

[B] 2

[C] 3

[D] 4

[E] 5

[F] 6

[G] 7

[H] 8

[I] 9

24.

A rectangular public park has an area of 3,600 square feet. It is surrounded on three sides by a chain link fence. If the entire length of the fence measures 180 feet, how many feet long could the unfenced side of the rectangular park be?

Indicate **all** such **lengths**.

- A. 30
- B. 40
- C. 60
- D. 90
- E. 120

25.

The range of the heights of the female students in a certain class is 13.2 inches, and the range of the heights of the male students in the class is 15.4 inches.

Which of the following statements individually provide(s) sufficient additional information to determine the range of the heights of all the students in the class?

Indicate all such statements.

- A. The tallest male student in the class is 5.8 inches taller than the tallest female student in the class.
- B. The median height of the male students in the class is 1.1 inches greater than the median height of the female students in the class.
- C. The average (arithmetic mean) height of the male students in the class is 4.6 inches greater than the average height of the female students in the class.

26

In a certain sequence of numbers, each term after the first term is found by multiplying the preceding term by 2 and then subtracting 3 from the product. If the 4th term in the sequence is 19, which of the following numbers are in the sequence? Indicate **all** such numbers.

- A.5
- B.8
- C.11
- D.16
- E.22
- F.35

27

A straight fence is to be constructed from posts 6 inches wide and separated by lengths of chain 5 feet long. If a certain fence begins and ends with a post, which of the following could be the length of the fence in feet?
(12 inches = 1 foot)

Indicate ALL such answers

- A) 17
- B) 28
- C) 35
- D) 39
- E) 50

28

A dressing recipe calls for vinegar and oil to be in the ratio 2:3 by volume, and for water and oil to be in the ratio 5:7 by volume. If there are no other ingredients in the recipe, which of the following statements must be true?

Indicate all such statements.

- [A] The dressing will contain more water than vinegar.
- [B] At least 25% of the dressing will be vinegar.
- [C] There will be 3 ounces of water in 9 ounces of dressing.
- [D] If we have equal volumes of each ingredient, the amount of dressing we can mix will be limited by the amount of oil.

This is from the Manhattan Word Problem guide. The official answers are A, B, and D. However, I am not sure of the answer choice B. The combined ratio of Vinegar, Oil, and Water would be 14:21:15 respectively with the total sum would be 50. If we multiply everything by 2, we get 28:42:30 (with a total of 100), implying Vinegar would be 28% in any amount of dressing. With this, how can one account for the least composition of Vinegar as 25%?

29

Chris entered a number in his calculator and erroneously multiplied the number by 2,073 instead of 2.073, getting an incorrect product. Which of the following is a single operation that Chris could perform on his calculator to correct the error?

Indicate all such operations.

- A. Multiply the incorrect product by 0.001

B. Divide the incorrect product by 0.001

C. Multiply the incorrect product by 1,000

D. Divide the incorrect product by 1,000