

毕出 21 套难度分级版

编写说明：

1. 本资料分为：语法 7 套，逻辑 7 套，阅读 5 套，和数学 2 套，总共 21 套
2. 本资料由 30% 的机经题和 70% 的精选题组成。对于精选题，精选原则和理由是：因为现在已有的官方材料题目，甚至包括每年更新的 OG 题，很多都是陈年旧题，和当今考试的侧重点已有不同，所以，本资料的精选题选取了历年材料中最贴近当今实战的考题。
3. 难度分级主要是基于学员做题数据以及官方给定的难度参考数据决定。
4. 每道题目均经过了最新的校对，请大家放心“食用”。

毕出老师介绍：

- ✧ 毕出老师结合语义学、句法学、形式逻辑学、构式语法等多门学科，独创出一套 GMAT 复习方法，真正解决了 GMAT 考试中所有“无法解释”的题目，建立了完善的 GMAT 学习体系。
- ✧ 作为 GMAT 培训师，他让自己学生的成绩平均提高了 71 分，以专业、幽默、睿智的风格活跃于课堂，是深受考生喜爱的人。
- ✧ 作为专家，他把握住了 GMAT 考试的核心，颠覆了国内持续二十几年的 GMAT 解题方法。
- ✧ 已出版《跟毕出一起考 GMAT》，《GMAT 句子改错—语法推理精讲》，《GMAT 批判性推理—逻辑分类精讲》，《GMAT 阅读理解—长难句精讲》，《GMAT 核心词汇》等辅导书，常年位居 GMAT 品类销量前列。

答案与解析获取方式：关注“GMAT 啦”微信公众号，输入“毕出 21 套”。

可扫描下方二维码，关注“GMAT 啦”微信公众号：



数学 2 套题目难度 :

第 1 套 : Hard

第 2 套 : Hard

数学第一套 : (Hard)

1. How many positive integers n have the property that both $3n$ and $n/3$ are 4-digit integers?

- (A) 111
- (B) 112
- (C) 333
- (D) 334
- (E) 1,134

2. If Whitney wrote the decimal representations for the first 300 positive integer multiples of 5 and did not write any other numbers, how many times would she have written the digit 5?

- (A) 150
- (B) 185
- (C) 186
- (D) 200
- (E) 201

3. If $x < y < z$ and $y - x > 5$, where x is an even integer and y and z are odd integers, what is the least possible value of $z - x$?

- (A) 6
- (B) 7
- (C) 8
- (D) 9
- (E) 10

4. If the product of the integers w , x , y , and z is 770, and if $1 < w < x < y < z$, what is the value of $w + z$?

- (A) 10
- (B) 13
- (C) 16
- (D) 18
- (E) 21

5. An "Armstrong number" is an n -digit number that is equal to the sum of the n th powers of its individual digits. For example, 153 is an Armstrong number because it has 3 digits and $1^3 + 5^3 + 3^3 = 153$. What is the digit k in the Armstrong number 1,6, k , 4 ?

- (A) 2
- (B) 3
- (C) 4
- (D) 5
- (E) 6

6. If $n = p^2$ and p is a prime number greater than 5, what is the units digit of n^2 ?

- (A) 1
- (B) 3
- (C) 4
- (D) 7
- (E) 9

7. Let S be the set of all positive integers having at most 4 digits and such that each of the digits is 0 or 1. What is the greatest prime factor of the sum of all the numbers in S ?

- (A) 11
- (B) 19
- (C) 37
- (D) 59
- (E) 101

8. When the integer n is divided by 17, the quotient is x and the remainder is 5. When n is divided by 23, the quotient is y and the remainder is 14. Which of the following is true?

- (A) $23x + 17y = 19$
- (B) $17x - 23y = 9$
- (C) $17x + 23y = 19$
- (D) $14x + 5y = 6$
- (E) $5x - 14y = -6$

9.

1,234

1,243

1,324

.....

.....

+4,321

The addition problem above shows four of the 24 different integers that can be formed by using each of the digits 1, 2, 3, and 4 exactly once in each integer. What is the sum of these 24 integers?

- (A) 24,000
- (B) 26,664
- (C) 40,440
- (D) 60,000
- (E) 66,660

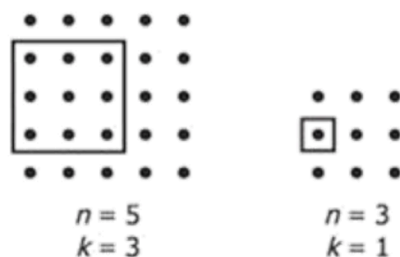
10. A computer can perform 1,000,000 calculations per second. At this rate, how many hours will it take this computer to perform the 3.6×10^{11} calculations required to solve a certain problems?

- (A) 60
- (B) 100
- (C) 600
- (D) 1,000
- (E) 6,000

11. A school supply store sells only one kind of desk and one kind of chair, at a uniform cost per desk or per chair. If the total cost of 3 desks and 1 chair is twice that of 1 desk and 3 chairs, then the total cost of 4 desks and 1 chair is how many times that of 1 desk and 4 chairs?

- (A) 5
- (B) 3
- (C) $\frac{8}{3}$
- (D) $\frac{5}{2}$
- (E) $\frac{7}{3}$

12.



Let n and k be positive integers with $k \leq n$. From an $n \times n$ array of dots, a $k \times k$ array of dots is selected. The figure above shows two examples where the selected $k \times k$ array is enclosed in a square. How many pairs (n, k) are possible so that exactly 48 of the dots in the $n \times n$ array

are NOT in the selected $k \times k$ array?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

13. A car traveled 462 miles per tankful of gasoline on the highway and 336 miles per tankful of gasoline in the city. If the car traveled 6 fewer miles per gallon in the city than on the highway, how many miles per gallon did the car travel in the city?

- (A) 14
- (B) 16
- (C) 21
- (D) 22
- (E) 27

14.

x	$C(x)$
0	25,000
10	24,919
20	24,846
30	24,781
40	24,724
50	24,675

A certain manufacturer uses the function $C(x)=0.04x^2-8.5x+25,000$ to calculate the cost, in dollars, of producing x thousand units of its product. The table above gives values of this cost function for values of x between 0 and 50 in increments of 10. For which of the following intervals is the average rate of decrease in cost less than the average rate of decrease in cost for each of the other intervals?

- (A) From $x=0$ to $x=10$
- (B) From $x=10$ to $x=20$
- (C) From $x=20$ to $x=30$
- (D) From $x=30$ to $x=40$

(E) From $x=40$ to $x=50$

15. There were 36,000 hardback copies of a certain novel sold before the paperback version was issued. From the time the first paperback copy was sold until the last copy of the novel was sold, 9 times as many paperback copies as hardback copies were sold. If a total of 441,000 copies of the novel were sold in all, how many paperback copies were sold?

- (A) 45,000
- (B) 360,000
- (C) 364,500
- (D) 392,000
- (E) 396,900

16. A certain truck traveling at 55 miles per hour gets 4.5 miles per gallon of diesel fuel consumed. Traveling at 60 miles per hour, the truck gets only 3.5 miles per gallon. On a 500-mile trip, if the truck used a total of 120 gallons of diesel fuel and traveled part of the trip at 55 miles per hour and the rest at 60 miles per hour, how many miles did it travel at 55 miles per hour?

- (A) 140
- (B) 200
- (C) 250
- (D) 300
- (E) 360

17. A merchant paid \$300 for a shipment of x identical calculators. The merchant used two of the calculators as demonstrators and sold each of the others for \$5 more than the average (arithmetic mean) cost of the x calculators. If the total revenue from the sale of the calculators was \$120 more than the cost of the shipment, how many calculators were in the shipment?

- (A) 24
- (B) 25
- (C) 26
- (D) 28
- (E) 30

18. If there is a least integer that satisfies the inequality $9/x \geq 2$, what is that least integer?

- (A) 0
- (B) 1
- (C) 4
- (D) 5

(E) There is not a least integer that satisfies the inequality

19. The sum of the ages of Doris and Fred is y years. If Doris is 12 years older than Fred, how many years old will Fred be y years from now, in terms of y ?

- (A) $y-6$
- (B) $2y-6$
- (C) $y/2-6$
- (D) $3y/2-6$
- (E) $5y/2-6$

20. If $k \neq 0$ and $k - (3-2k^2)/k = x/k$, then $x =$

- (A) $-3-k^2$
- (B) k^2-3
- (C) $3k^2-3$
- (D) $k-3-2k^2$
- (E) $k-3+2k^2$

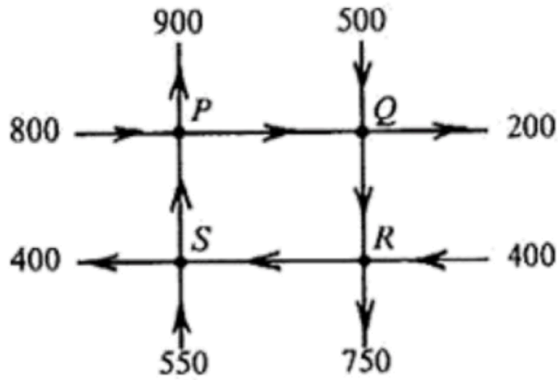
21. King School has an enrollment of 900 students. The school day consists of 6 class periods during which each class is taught by one teacher. There are 30 students per class. Each teacher teaches a class during 5 of the 6 class periods and has one class period free. No students have a free class period. How many teachers does the school have?

- (A) 25
- (B) 30
- (C) 36
- (D) 60
- (E) 150

22. Each of the integers from 0 to 9, inclusive, is written on a separate slip of blank paper and the ten slips are dropped into a hat. If the slips are then drawn one at a time without replacement, how many must be drawn to ensure that the numbers on two of the slips drawn will have a sum of 10?

- (A) Three
- (B) Four
- (C) Five
- (D) Six
- (E) Seven

23.



The figure above represents a network of one-way streets. The arrows indicate the direction of traffic flow and the numbers indicate the amount of traffic flow into or out of each of the four intersections during a certain hour. During that hour, what was the amount of traffic flow along the street from R to S if the total amount of traffic flow into P was 1,200? (Assume that none of the traffic originates or terminates in the network)

- (A) 200
- (B) 250
- (C) 300
- (D) 350
- (E) 400

24. Machines X and Y run at different constant rates, and machine X can complete a certain job in 9 hours. Machine X worked on the job alone for the first 3 hours and the two machine working together, then completed the job in 4 more hours. How many hours would it have taken machine Y, working alone, to complete the entire job?

- (A) 18
- (B) $13\frac{1}{2}$
- (C) $7\frac{1}{5}$
- (D) $4\frac{1}{2}$
- (E) $3\frac{2}{3}$

25. When a certain stretch of highway was rebuilt and straightened, the distance along stretch was decreased by 20 percent and the speed limit was increased by 25 percent. By what percent was the driving time along this stretch reduced for a person who always drives at the speed limit?

- (A) 16%
- (B) 36%
- (C) 37.5%
- (D) 45%
- (E) 50.25%

26. The annual stockholders' report for Corporation X stated that profits were up 10 percent over the previous year, although profits as a percent of sales were down 10 percent. Total sales for that year were approximately what percent of sales for the previous year?

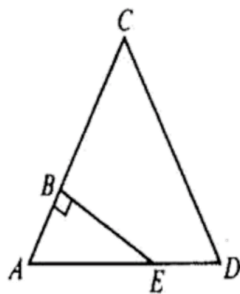
- (A) 78%
- (B) 90%
- (C) 110%
- (D) 122%
- (E) 190%

27. A certain brand of house paint must be purchased either in quarts at \$12 each or in gallons at \$18 each. A painter needs a 3-gallon mixture of the paint consisting of 3 parts blue and 2 parts white. What is the least amount of money needed to purchase sufficient quantities of the two colors to make the mixture?

(4 quarts = 1 gallon)

- (A) \$54
- (B) \$60
- (C) \$66
- (D) \$90
- (E) \$144

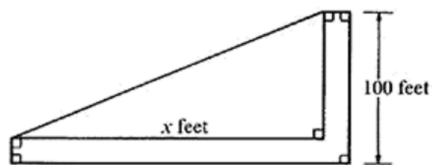
28.



If each side of $\triangle ACD$ above has length 3 and if AB has length 1, what is the area of region BCDE?

- (A) $\frac{9}{4}$
- (B) $(\frac{7}{4})\sqrt{3}$
- (C) $(\frac{9}{4})\sqrt{3}$
- (D) $(\frac{7}{2})\sqrt{3}$
- (E) $6 + \sqrt{2}$

29



Note: Figure not drawn to scale.

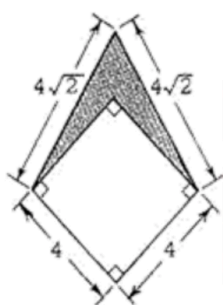
The figure above shows some of the dimensions of a triangular plaza with an L-shaped walk along two of its edges. If the width of the walk is 4 feet and the total area of the plaza and walk together is 10,800 square feet, what is the value of x ?

- (A) 200
- (B) 204
- (C) 212
- (D) 216
- (E) 225

30. The surface distance between 2 points on the surface of a cube is the length of the shortest path on the surface of the cube that joins the 2 points. If a cube has edges of length 4 centimeters, what is the surface distance, in centimeters, between the lower left vertex on its front face and the upper right vertex on its back face?

- (A) 8
- (B) $4\sqrt{5}$
- (C) $8\sqrt{2}$
- (D) $12\sqrt{2}$
- (E) $4\sqrt{2}+4$

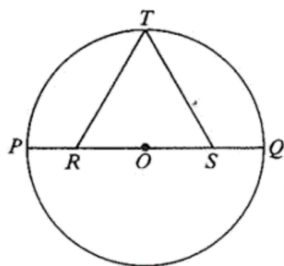
31.



In the figure above, the area of the shaded region is

- (A) $8\sqrt{2}$
- (B) $4\sqrt{3}$
- (C) $4\sqrt{2}$
- (D) $8(\sqrt{3}-1)$
- (E) $8(\sqrt{2}-1)$

32.



In the figure above, PQ is a diameter of circle O , $PR = SQ$, and $\triangle RST$ is equilateral. If the length of PQ is 2, what is the length of RT ?

- (A) $1/2$
- (B) $1/\sqrt{3}$
- (C) $\sqrt{3}/2$
- (D) $2/\sqrt{3}$
- (E) $\sqrt{3}$

33. A circular rim 28 inches in diameter rotates the same number of inches per second as a circular rim 35 inches in diameter. If the smaller rim makes x revolutions per second, how many revolutions per minute does the larger rim make in terms of x ?

- (A) $48\pi/x$
- (B) $75x$
- (C) $48x$
- (D) $24x$
- (E) $x/75$

34. Rita and Sam play the following game with n sticks on a table. Each must remove 1, 2, 3, 4 or 5 sticks at a time on alternate turns, and no stick that is removed is put back on the table. The one who removes the last stick(or sticks) from the table wins. If Rita goes first, which of the following is a value of n such that Sam can always win no matter how Rita plays?

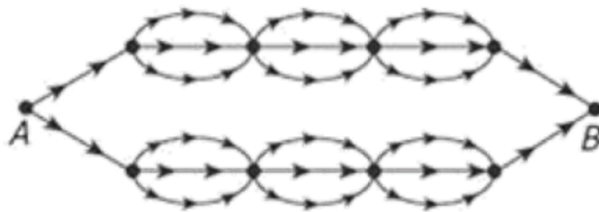
- (A) 7
- (B) 10
- (C) 11
- (D) 12
- (E) 16

35. Ben and Ann are among 7 contestants from which 4 semifinalists are to be selected. Of the different possible selections, how many contain neither Ben nor Ann?

- (A) 5

- (B) 6
(C) 7
(D) 14
(E) 21

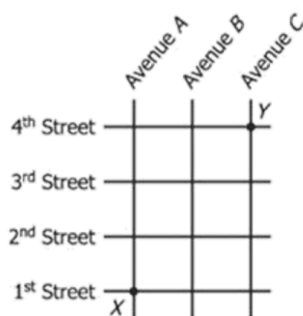
36.



The map above shows the trails through a wilderness area. If travel is in the direction of the arrows, how many routes along the marked trails are possible from point A to point B?

- (A) 11
(B) 18
(C) 54
(D) 108
(E) 432

37.



Pat will walk from intersection X to intersection Y along a route that is confined to the square grid of four streets and three avenues shown in the map above. How many routes from X to Y can Pat take that have the minimum possible length?

- (A) Six
(B) Eight
(C) Ten
(D) Fourteen
(E) Sixteen

38. If $s/t = 2$, then the value of which of the following can be determined?

I $2t/s$

-
- II $(s-t)/t$
III $(t-1)/(s-1)$

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

39. If $2x+5y=8$ and $3x=2y$, what is the value of $2x+y$?

- (A) 4
(B) $70/19$
(C) $64/19$
(D) $56/19$
(E) $40/19$

40. When $2/9$ of the votes on a certain resolution have been counted, $3/4$ of those counted are in favor of the resolution. What fraction of the remaining votes must be against the resolution so that the total count will result in a vote of 2 to 1 against the resolution?

- (A) $11/14$
(B) $13/18$
(C) $4/7$
(D) $3/7$
(E) $3/14$

41. The sum of the first 100 positive integers is 5,050. What is the sum of the first 200 positive integers?

- (A) 10,100
(B) 10,200
(C) 15,050
(D) 20,050
(E) 20,100

数学第二套 : (Hard)

1. The cardinality of a finite set is the number of elements in the set. What is the cardinality of set A?

- (1) 2 is the cardinality of exactly 6 subsets of set A.
(2) Set A has a total of 16 subsets, including the empty set and set A itself.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

2.

X, 81, 73, 71, 98, 73, 64

What is the value of X in the above list of 7 numbers?

- (1) The average (arithmetic mean) of these 7 numbers is 80.
(2) The range of these 7 numbers is 36.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

3. If $1 < d < 2$, is the tenths digit of the decimal representation of d equal to 9?

- (1) $d + 0.01 < 2$
(2) $d + 0.05 > 2$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

4. If b is the product of three consecutive positive integers c, c + 1, and c + 2, is b a multiple of 24?

- (1) b is a multiple of 8.
(2) c is odd.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

-
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

5. If x and z are integers, is $x+z^2$ odd?

- (1) x is odd and z is even.
(2) $x-z$ is odd.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

6. If x an integer?

- (1) x^2 is an integer.
(2) $x/2$ is not an integer.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

7. If m and n are positive integers, what is the value of $3/m + n/4$?

- (1) $mn=12$
(2) $3/m$ is in lowest terms and $n/4$ is in lowest terms.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

8. If x , y , and d are integers and d is odd are both x and y divisible by d ?

- (1) $x+y$ is divisible by d .
(2) $x-y$ is divisible by d .

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.

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- (D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

9. If K is a positive integer less than 10 and $N=4321+K$, what is the value of K ?

- (1) N is divisible by 3.
(2) N is divisible by 7.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

10. If m and n are positive integers, is n even?

- (1) $m(m+2)+1=mn$
(2) $m(m+n)$ is odd.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

11. If $@$ denotes a mathematical operation, does $x@y=y@x$ for all x and y ?

- (1) For all x and y , $x@y=2(x^2+y^2)$.
(2) For all y , $0@y=2y^2$.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

12. The 9 participants in a race were divided into 3 teams with 3 runners on each team. A team was awarded $6-n$ points if one of its runners finished in n th place, where $1 \leq n \leq 5$. If all of the runners finished the race and if there were no ties was each team awarded at least 1 point?

- (1) No team was awarded more than a total of 6 points.
(2) No pair of teammates finished in consecutive places among the top five places.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

-
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

13. If x and y are integers, is $xy+1$ divisible by 3?

- (1) When x is divided by 3, the remainder is 1.
(2) When y is divided by 9, the remainder is 8.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

14. If x is a positive integer, how many positive integers less than x are divisors of x ?

- (1) x^2 is divisible by exactly 4 positive integers less than x^2 .
(2) $2x$ is divisible by exactly 3 positive integers less than $2x$.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

15. Sprinklers are being installed to water a lawn. Each sprinkler waters in a circle. Can the lawn be watered completely by 4 installed sprinklers?

- (1) The lawn is rectangular and its area is 32 square yards.
(2) Each sprinkler can completely water a circular area of lawn with a maximum radius of 2 yards.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

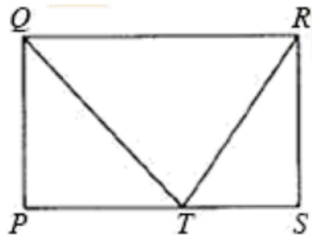
16. In quadrilateral ABCD, is angle BCD a right angle?

- (1) Angle ABC is a right angle.

(2) Angle ADC is a right angle.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are NOT sufficient.

17.



In rectangular region PQRS above, T is a point on side PS. If $PS = 4$, what is the area of region PQRS?

- (1) $\triangle QTR$ is equilateral.
- (2) Segments PT and TS have equal length.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are NOT sufficient.

18. The top surface area of a square table top was changed so that one of the dimensions was reduced by 1 inch and the other dimension was increased by 2 inches. What was the surface area before these changes were made?

- (1) After the changes were made, the surface area was 70 square inches.
- (2) There was a 25 percent increase in one of the dimensions.

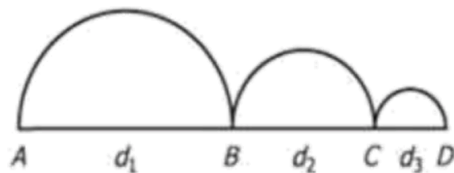
- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
- (D) EACH statement ALONE is sufficient.
- (E) Statements (1) and (2) TOGETHER are NOT sufficient.

19. Is the perimeter of a certain rectangular garden greater than 50 meters?

- (1) The two shorter sides of the garden are each 15 meters long.
- (2) The length of the garden is 5 meters greater than the width of the garden.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
 (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
 (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
 (D) EACH statement ALONE is sufficient.
 (E) Statements (1) and (2) TOGETHER are NOT sufficient.

20.



In the figure above, points A, B, C, and D are collinear and AB, BC, and CD are semicircles with diameters d_1 cm, d_2 cm, and d_3 cm, respectively. What is the sum of the lengths of AB, BC and CD in centimeters?

- (1) $d_1 : d_2 : d_3$ is 3:2:1
 (2) The length of AD is 48 cm.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
 (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
 (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
 (D) EACH statement ALONE is sufficient.
 (E) Statements (1) and (2) TOGETHER are NOT sufficient.

21. In the rectangular coordinate system, line k passes through the point $(n, -1)$. Is the slope of line k greater than zero?

- (1) Line k passes through the origin.
 (2) Line k passes through the point $(1, n+2)$.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
 (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
 (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
 (D) EACH statement ALONE is sufficient.
 (E) Statements (1) and (2) TOGETHER are NOT sufficient.

22. What is the length of the hypotenuse of $\triangle ABC$?

- (1) The lengths of the three sides of $\triangle ABC$ are consecutive even integers .
 (2) The hypotenuse of $\triangle ABC$ is 4 units longer than the shorter leg.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
 (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

-
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

23. In the standard (x, y) coordinate plane, what is the slope of the line containing the distinct points P and Q?

- (1) Both P and Q lie on the graph of $|x| + |y| = 1$
(2) Both P and Q lie on the graph of $|x + y| = 1$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

24. Alan and Sue have each been saving one dollar a day and will continue to do so for the next month. If Sue began saving several days before Alan, in how many days from today will Alan have saved one-half as much as Sue?

- (1) As of today, Alan has saved 7 dollars and Sue has saved 27 dollars.
(2) Three days from today, Alan will have saved one-third as much as Sue.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

25. What is the value of x/yz ?

- (1) $x = y/2$ and $z = 2x/5$
(2) $x/z = 5/2$ and $1/y = 1/10$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

26. Of the numbers q , r , s , and t , which is greatest?

- (1) The average (arithmetic mean) of q and r is s .
(2) The sum of q and r is t .

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

-
- (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

27. A box of light bulbs contains exactly 3 light bulbs that are defective. What is the probability that a sample of light bulbs picked at random from this box will contain at least 1 defective light bulb?

- (1) The light bulbs in the sample will be picked 1 at a time without replacement.
(2) The sample will contain exactly 20 light bulbs.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

28. Is $xy < 6$?

- (1) $x < 3$ and $y < 2$
(2) $\frac{1}{2} < x < \frac{2}{3}$ and $y^2 < 64$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

29. What is the median of the data set S that consists of the integers 17, 29, 10, 26, 15, and x?

- (1) The average (arithmetic mean) of S is 17.
(2) The range of S is 24.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

30. If $x \neq 1$, is y equal to $x+1$?

- (1) $(y-2)/(x-1)=1$
(2) $y^2=(x+1)^2$

-
- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

31. Three dice, each with faces numbered 1 through 6, were tossed onto a game board. If one of the dice turned up 4, what was the sum of the numbers that turned up on all three dice?

- (1) The sum of two of the numbers that turned up was 10.
(2) The sum of two of the numbers that turned up was 11.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

32. Is $x^2 - y^2$ a positive number?

- (1) $x - y$ is a positive number.
(2) $x + y$ is a positive number.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

33. An investment has been growing at a fixed annual rate of 20% since it was first made; no portion of the investment has been withdrawn, and all interest has been reinvested. How much is the investment now worth?

- (1) The value of the investment has increased by 44% since it was first made.
(2) If one year ago \$600 had been withdrawn, today the investment would be worth 12% less than it is actually now worth.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

34. If $x + y + z > 0$, is $z > 1$?

- (1) $z > x + y + 1$
(2) $x + y + 1 < 0$

-
- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

35. In the first 2 hours after Meadow's self-service laundry opens, m large washing machines and n small washing machines are in continual use. Including the time for filling and emptying the washing machines, each load of laundry takes 30 minutes in a large washing machine and 20 minutes in a small washing machine. What is the total number of loads of laundry done at Meadow's self-service laundry during this 2-hour period?

- (1) $n=3m$
(2) $2m+3n=55$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

36. Let S be a set of outcomes and let A and B be events with outcomes in S . Let $\sim B$ denote the set of all outcomes in S that are not in B and let $P(A)$ denote the probability that event A occurs. What is the value of $P(A)$?

- (1) $P(A \cup B) = 0.7$
(2) $P(A \cup \sim B) = 0.9$

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

37. How many people in Town X read neither the Word newspaper nor the Globe newspaper?

- (1) Of the 2500 people in Town X, 1000 read no newspaper.
(2) Of the people in Town X, 700 read the globe only and 600 read the World only.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

38. What is the sum of 3 consecutive integers?

-
- (1) The sum of the 3 integers is less than the greatest of the 3 integers.
(2) Of the 3 integers, the ratio of the least to the greatest is 3.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

39. What is the number of integers that are common to both set S and set T?

- (1) The number of integers in S is 7, and the number of integers in T is 6.
(2) U is the set of integers that are in S only or in T only or in both, and the number of integers in U is 10.

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.

40. A country's per capita national debt is its national debt divided by its population. Is the per capita national debt of Country G within \$5 of \$500?

- (1) Country G's national debt to the nearest \$1,000,000,000 is \$43,000,000,000
(2) Country G's population to the nearest 1,000,000 is 86,000,000

- (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are NOT sufficient.