题号后面括号里面对应的是 GWD31 套，第一个数字是套题号，第二个数字是具体题号。

1.(20Q14)

Six cards numbered from 1 to 6 are placed in an empty bowl. First one card is drawn and then put back into the bowl; then a second card is drawn. If the cards are drawn at random and if the sum of the numbers on the cards is 8, what is the probability that one of the two cards drawn is numbered 5？

A. $\dfrac{1}{6}$

B. $\dfrac{1}{5}$

C. $\dfrac{1}{3}$

D. $\dfrac{2}{5}$

E. $\dfrac{2}{3}$

2.(2Q22)

A construction company was paid a total of $500,000 for a construction project. The company's only costs for the project were for labor and materials. Was the company's profit for the project greater than $150,000?

  (1)   The company's total cost was three times its cost for materials.
  (2)   The company's profit was greater than its cost for labor.

3.(7Q12)

If r, s, and w are positive numbers such that $w = 60r + 80s$ and $r + s = 1$, is $w < 70$?

  (1) $r > 0.5$
  (2) $r > s$

4.(9Q36)

If x, y, and k are positive numbers such that $(\dfrac{x}{x+y})(10) + (\dfrac{y}{x+y})(20) = k$ and if $x < y$, which of the following could be the value of k?

A. 10
B. 12
C. 15
D. 18
E. 30

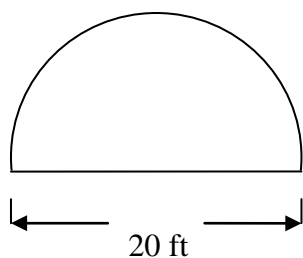5.(10Q4)

If *S* is the sum of the reciprocals of the consecutive integers from 91 to 100, inclusive, which of the following is less than *S*?

I. $\dfrac{1}{8}$

II. $\dfrac{1}{9}$

III. $\dfrac{1}{10}$

A. None
B. I only
C. III only
D. II and III only
E. I, II, and III

6.(2Q6)

20 ft

The figure above shows the dimensions of a semicircular cross section of a one-way tunnel.　The single traffic lane is 12 feet wide and is equidistant from the sides of the tunnel.　If vehicles must clear the top of the tunnel by at least ½ foot when they are inside the traffic lane, what should be the limit on the height of vehicles that are allowed to use the tunnel?

A. 5½ ft
B. 7½ ft
C. 8 ½ ft
D. 9½ ft
E. 10 ft

7.(1Q2)

A certain roller coaster has 3 cars, and a passenger is equally likely to ride in any 1 of the 3 cars each time that passenger rides the roller coaster.   If a certain passenger is to ride the roller coaster 3 times, what is the probability that the passenger will ride in each of the 3 cars?

> A.   0
> B.   1/9
> C.   2/9
> D.   1/3
> E.   1

8.(1Q9)

A gardener is going to plant 2 red rosebushes and 2 white rosebushes.   If the gardener is to select each of the bushes at random, one at a time, and plant them in a row, what is the probability that the 2 rosebushes in the middle of the row will be the red rosebushes?

> A.   1/12
> B.   1/6
> C.   1/5
> D.   1/3
> E.   1/2

9.(2Q31)

There are 8 magazines lying on a table; 4 are fashion magazines and the other 4 are sports magazines.   If 3 magazines are to be selected at random from the 8 magazines, what is the probability that at least one of the fashion magazines will be selected?

> A.   1/2
> B.   2/3
> C.   32/35
> D.   11/12
> E.   13/14

10.(11Q30)

In a stack of cards, 9 cards are blue and the rest are red.   If 2 cards are to be chosen at random from the stack without replacement, the probability that the cards chosen will both be blue is 6/11.   What is the number of cards in the stack?

> A.   10
> B.   11
> C.   12
> D.   15
> E.   18

11.(12Q6)

A box contains 10 light bulbs, fewer than half of which are defective.   Two bulbs are to be drawn simultaneously from the box.   If n of the bulbs in box are defective, what is the value of n?

    (1) The probability that the two bulbs to be drawn will be defective is 1/15.

    (2) The probability that one of the bulbs to be drawn will be defective and the other will not be defective is 7/15.

12.(12Q17)

If a certain coin is flipped, the probability that the coin will land heads is 1/2.   If the coin is flipped 5 times, what is the probability that it will land heads up on the first 3 flips and not on the last 2 flips?

        A.   3/5

        B.   1/2

        C.   1/5

        D.   1/8

        E.   1/32

13.(16Q27)

A box contains exactly 24 balls, of which 12 are red and 12 are blue.   If two balls are to be picked from this box at random and without replacement, what is the probability that both balls will be red?

        A. $\dfrac{11}{46}$

        B. $\dfrac{1}{4}$

        C. $\dfrac{5}{12}$

        D. $\dfrac{17}{40}$

        E. $\dfrac{19}{40}$

14.(18Q32)

What is the probability that event E or event F or both will occur?

    (1) The probability that event E will occur is 0.6.

    (2) The probability that event F will occur is 0.4.

15.(18Q33)

If the probability is 0.54 that Stock A will increase in value during the next month and the probability is 0.68 that Stock B will increase in value during the next month, what

is the greatest possible value for the probability that neither of these two events will occur?

0.22

0.32

0.37

0.46

0.63

16.(21Q37)

A gumball dispenser has 24 gumballs, 12 white and 12 black, which are dispensed at random.   If the first 3 gumballs dispensed are black, what is the probability that the next gumball dispensed will be black?

A. $\dfrac{1}{2}$

B. $\dfrac{1}{3}$

C. $\dfrac{1}{4}$

D. $\dfrac{3}{7}$

E. $\dfrac{3}{8}$

17.(24Q4)

A shipment of 8 television sets contains 2 black-and-white sets and 6color sets. If 2 television sets are to be chosen at random from this shipment, what is the probability that at least 1 of the 2 sets chosen will be a black-and-white set?

A.1/7   B. ¼   C. 5/14   D. 11/28   E. 13/28

18.(25Q6)

A string of 10 lightbulbs is wired in such a way that if any individual lightbulb fails, the entire string fails. If for each individual lightbulb the probability of failing during time period T id 0.06, what is the probability that the string of lightbulbs will fail during time period T?

A.0.06

B.(0.06)^10

C.1-(0.06)^10

D.(0.94)^10

E.1-(0.94)^10

19.(26Q3)

A coin that is tossed will land heads or tails, and each outcome has equal probability. What is the probability that the coin will land heads at least once on two tosses?

A. 1/4
B. 1/3
C. 1/2
D. 2/3
E. 3/4

20.(29Q17)

In a box of 12 pens, a total of 3 are defective.   If a customer buys 2 pens selected at random from the box, what is the probability that neither pen will be defective?

A. $\dfrac{1}{6}$

B. $\dfrac{2}{9}$

C. $\dfrac{6}{11}$

D. $\dfrac{9}{16}$

E. $\dfrac{3}{4}$

21.(3Q2)

On Saturday morning, Malachi will begin a camping vacation and he will return home at the end of the first day on which it rains.   If on the first three days of the vacation the probability of rain on each day is 0.2, what is the probability that Malachi will return home at the end of the day on the following Monday?

A. 0.008
B. 0.128
C. 0.488
D. 0.512
E. 0.640

22.(9Q23)

When tossed, a certain coin has equal probability of landing on either side.   If the coin is tossed 3 times, what is the probability that it will land on the same side each time?

A. $\dfrac{1}{8}$

B. $\dfrac{1}{4}$

C. $\dfrac{1}{3}$

D. $\dfrac{3}{8}$

E. $\dfrac{1}{2}$

23.(19Q37)

```
   AB
 +BA
  AAC
```

In the correctly worked addition problem shown, where
the sum of the two-digit positive integers AB and BA is
the three-digit integer AAC, and A, B, and C are different digits, what is the units
digit of the integer AAC?

A. 9
B. 6
C. 3
D. 2
E. 0

24.(22Q29)

In the xy-plane, region R consists of all the points (x, y) such that $2x + 3y \leq 6$.   Is the
point (r, s) in region R ?

   (1) $3r + 2s = 6$
   (2) $r \leq 3$ and $s \leq 2$

25.(25Q27)

If M is a positive integer, then M^3 has how many digits?
(1) M has 3 digits.
(2) M^2 has 5 digits

26.(1Q31)

A positive integer n is said to be "prime-saturated" if the product of all the different
positive prime factors of n is less than the square root of n.   What is the greatest
two-digit prime-saturated integer?

   A. 99
   B. 98
   C. 97
   D. 96
   E. 95

27.(2Q26)

There are 8 books on a shelf, of which 2 are paperbacks and 6 are hardbacks.   How many possible selections of 4 books from this self include at least one paperback?

A. 40
B. 45
C. 50
D. 55
E. 60

28.(15Q18)

Departments *A*, *B*, and *C* have 10 employees each, and department *D* has 20 employees.   Departments *A*, *B*, *C*, and *D* have no employees in common.   A task force is to be formed by selecting 1 employee from each of departments *A*, *B*, and *C* and 2 employees from department *D*.   How many different task forces are possible?

A.   19,000
B.   40,000
C. 100,000
D. 190,000
E. 400,000

29.(19Q6)

An analyst will recommend a combination of 3 industrial stocks, 2 transportation stocks, and 2 utility stocks.   If the analyst can choose from 5 industrial stocks, 4 transportation stocks, and 3 utility stocks, how many different combinations of 7 stocks are possible?

A. 12
B. 19
C. 60
D. 180
E. 720

30.(19Q26)

How many different 6-letter sequences are there that consist of 1 *A*, 2 *B*'s, and 3 *C*'s ?

A. 6
B. 60
C. 120
D. 360
E. 720

31.(26Q14)

A three-digit code for certain logs uses the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 according to the following constraints. The first digit cannot be 0 or 1, the second digit must be 0 or 1, and the second and third digits cannot both be 0 in the same code. How many different codes are possible?

        A. 144
        B. 152
        C. 160
        D. 168
        E. 176

32.(28Q37)

In a meeting of 3 representatives from each of 6 different companies, each person shook hands with every person not from his or her own company. If the representatives did not shake hands with people from their own company, how many handshakes took place?

        A. 45
        B. 135
        C. 144
        D. 270
        E. 288

33.(17Q16)

The three-digit integer kss is the sum of the two-digit integers ks and rs, where k, r, and s are the digits of the integers. Which of the following must be true?

    I. $k = 2$
   II. $r = 9$
  III. $s = 5$

        A. I only
        B. II only
        C. III only
        D. I and II
        E. II and III

34.(8Q31)

The numbers x and y are three-digit positive integers, and $x + y$ is a four-digit integer. The tens digit of x equals 7 and the tens digit of y equals 5. If $x < y$, which of the following must be true?

I.   The units digit of $x + y$ is greater than the units digit of either x or y.
II. The tens digit of $x + y$ equals 2.
III. The hundreds digit of y is at least 5.

    A. II only
    B. III only
    C. I and II
    D. I and III
    E. II and III

35.(15Q28)
A school administrator will assign each student in a group of n students to one of m classrooms.   If $3 < m < 13 < n$, is it possible to assign each of the n students to one of the m classrooms so that each classroom has the same number of students assigned to it?
    (1) It is possible to assign each of $3n$ students to one of m classrooms so that each classroom has the same number of students assigned to it.
    (2) It is possible to assign each of $13n$ students to one of m classrooms so that each classroom has the same number of students assigned to it.

36.(1Q30)
Joanna bought only $0.15 stamps and $0.29 stamps.   How many $0.15 stamps did she buy?
    (1) She bought $4.40 worth of stamps.
    (2) She bought an equal number of $0.15 stamps and $0.29 stamps.

37.(7Q17)
Company S produces two kinds of stereos: basic and deluxe.   Of the stereos produced by Company S last month, $\dfrac{2}{3}$ were basic and the rest were deluxe.   If it takes $\dfrac{7}{5}$ as many hours to produce a deluxe stereo as it does to produce a basic stereo, then the number of hours it took to produce the deluxe stereos last month was what fraction of the total number of hours it took to produce all the stereos?

    A. $\dfrac{7}{17}$
    B. $\dfrac{14}{31}$
    C. $\dfrac{7}{15}$

D. $\dfrac{17}{35}$

E. $\dfrac{1}{2}$

38.(7Q21)

Theater *M* has 25 rows with 27 seats in each row.　How many of the seats were occupied during a certain show?

(1) During the show, there was an average (arithmetic mean) of 10 unoccupied seats per row for the front 20 rows.

(2) During the show, there was an average (arithmetic mean) of 20 unoccupied seats per row for the back 15 rows.

39.(7Q28)

This year Henry will save a certain amount of his income, and he will spend the rest. Next year Henry will have no income, but for each dollar that he saves this year, he will have $1 + r$ dollars available to spend.　In terms of *r*, what fraction of his income should Henry save this year so that next year the amount he was available to spend will be equal to half the amount that he spends this year?

A. $\dfrac{1}{r+2}$

B. $\dfrac{1}{2r+2}$

C. $\dfrac{1}{3r+2}$

D. $\dfrac{1}{r+3}$

E. $\dfrac{1}{2r+3}$

40.(15Q29)

The toll for crossing a certain bridge is $0.75 each crossing.　Drivers who frequently use the bridge may instead purchase a sticker each month for $13.00 and then pay only $0.30 each crossing during that month.　If a particular driver will cross the bridge twice on each of *x* days next month and will not cross the bridge on any other day, what is the least value of *x* for which this driver can save money by using the sticker?

F. 14

G. 15

H. 16

I. 28

J. 29

41.(11Q23)

One kilogram of a certain coffee blend consists of x kilogram of type I coffee and y kilogram of type II coffee.   The cost of the blend is C dollars per kilogram, where C = 6.5x + 8.5y.   Is x < 0.8?

  (1) y > 0.15
  (2) C ≥ 7.30

42.(3Q18)

Last year the price per share of Stock X increased by k percent and the earnings per share of Stock X increased by m percent, where k is greater than m.   By what percent did the ratio of price per share to earnings per share increase, in terms of k and m?

      A. k/m %
      B. (k-m) %
      C. [100(k-m)]/(100+k) %
      D. [100(k-m)]/(100+m) %
      E. [100(k-m)]/(100+k+m) %

43.(13Q7)

For a certain race, 3 teams were allowed to enter 3 members each.   A team earned 6 – n points whenever one of its members finished in nth place, where 1 ≤ n ≤ 5.   There were no ties, disqualifications, or withdrawals.   If no team earned more than 6 points, what is the least possible score a team could have earned?

      A. 0
      B. 1
      C. 2
      D. 3
      E. 4

44.(15Q24)

Factor	Percent of Respondents
User-friendly	56%
Fast response time	48%
Bargain prices	42%

The table gives three factors to be considered when choosing an Internet service provider and the percent of the 1,200 respondents to a survey who cited that factor as important.   If 30 percent of the respondents cited both "user-friendly" and "fast

response time," what is the maximum possible number of respondents who cited "bargain prices," but neither "user-friendly" nor "fast response time?"

    A. 312
    B. 336
    C. 360
    D. 384
    E. 420

45.(16Q35)

The total charge to rent a car for one day from Company J consists of a fixed charge of $15.00 plus a charge of $0.20 per mile driven. The total charge to rent a car for one day from Company K consists of a fixed charge of $20.00 plus a charge of $0.10 per mile driven. Is the total charge to rent a car from Company J for one day and drive it x miles less than $25.00 ?

    (1) The total charge to rent a car from Company K for one day and drive it x miles is less than $25.00.

    (2) $x < 50$

46.(18Q13)

Each of 20 parents chose one of five days from Monday through Friday to attend parent-teacher conferences. If more parents chose Monday than Tuesday, did at least one of the parents choose Friday?

    (1)   None of the five days was chosen by more than 5 parents.

    (2)   More parents chose Monday than Wednesday.

47.(9Q26)

In the decimal representation of x, where $0 < x < 1$, is the tenths digit if x nonzero?

    (1) $16x$ is an integer.

    (2) $8x$ is an integer.

48.(13Q35)

Stations X and Y are connected by two separate, straight, parallel rail lines that are 250 miles long. Train P and train Q simultaneously left Station X and Station Y, respectively, and each train traveled to the other's point of departure. The two trains passed each other after traveling for 2 hours. When the two trains passed, which train was nearer to its destination?

    (1) At the time when the two trains passed, train P had averaged a speed of 70 miles per hour.

    (2)   Train Q averaged a speed of 55 miles per hour for the entire trip.

49.(3Q36)

If M is the least common multiple of 90, 196, and 300, which of the following is NOT a factor of M?

A. 600
B. 700
C. 900
D. 2,100
E. 4,900

50.(9Q32)

What is the remainder when the positive integer x is divided by 8?

(1)   When x is divided by 12, the remainder is 5.
(2)   When x is divided by 18, the remainder is 11.

51.(19Q18)

If q is a positive integer less than 17 and r is the remainder when 17 is divided by q, what is the value of r?

(1) $q > 10$
(2) $q = 2^k$, where k is a positive integer.

52.(4Q15)

If n is a positive integer and r is the remainder when $(n – 1)(n + 1)$ is divided by 24, what is the value of r?

(1)   2 is not a factor of n.
(2)   3 is not a factor of n.

53.(12Q11)

The product of the units digit, the tens digit, and the hundreds digit of the positive integer m is 96.   What is the units digit of m?

(1) m is odd.
(2) The hundreds digit of m is 8.

54.(5Q3)

If a committee of 3 people is to be selected from among 5 married couples so that the committee does not include two people who are married to each other, how many such committees are possible?

A. 20
B. 40
C. 50
D. 80
E. 120

55.(17Q2)

A researcher plans to identify each participant in a certain medical experiment with a code consisting of either a single letter or a pair of distinct letters written in alphabetic

order.   What is the least number of letters that can be used if there are 12 participants, and each participant is to receive a different code?

        A. 4
        B. 5
        C. 6
        D. 7
        E. 8

56.(7Q2)

If 2 different representatives are to be selected at random from a group of 10 employees and if p is the probability that both representatives selected will be women, is $p > \dfrac{1}{2}$?

(1)   More than $\dfrac{1}{2}$ of the 10 employees are women.

(2)   The probability that both representatives selected will be men is less than $\dfrac{1}{10}$

57.(1Q25)

A photographer will arrange 6 people of 6 different heights for photograph by placing them in two rows of three so that each person in the first row is standing in front of someone in the second row.   The heights of the people within each row must increase from left to right, and each person in the second row must be taller than the person standing in front of him or her.   How many such arrangements of the 6 people are possible?

        A. 5
        B. 6
        C. 9
        D. 24
        E. 36

58.(10Q25)

If the sequence $x_1, x_2, x_3, \ldots, x_n, \ldots$ is such that $x_1 = 3$ and $x_{n+1} = 2x_n - 1$ for $n \geq 1$, then $x_{20} - x_{19} =$

        A. 2^{19}
        B. 2^{20}
        C. 2^{21}
        D. 2^{20} - 1
        E. 2^{21} - 1

59.(8Q9)

If an integer *n* is to be chosen at random from the integers 1 to 96, inclusive, what is the probability that $n(n + 1)(n + 2)$ will be divisible by 8?

A. $\dfrac{1}{4}$

B. $\dfrac{3}{8}$

C. $\dfrac{1}{2}$

D. $\dfrac{5}{8}$

E. $\dfrac{3}{4}$

1-10   DCDDC BCBEC
11-20   DEAEB DEEEC
21-30   BBEEE DDDDB
31-40   BBBBB AAEEB
41-50   BDDAD ABAAE
51-59   BCADB EAAD