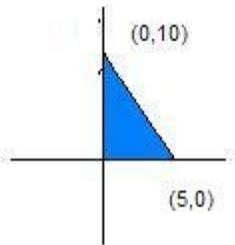


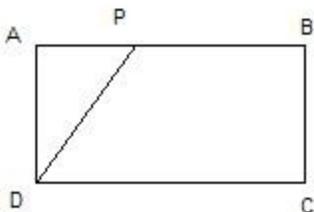
GMAT Special Questions

1. Point (A,B) is randomly selected inside of circle $x^2+y^2=1$. What is the probability that $A>B>0$?
2. There are 10 marble balls, including 5 green, 3 blue, and 2 red, in a container. One ball is picked out then put back, then another ball is selected. What is the probability that a green ball and a blue ball will be selected?
3. There are 4 letters and 4 corresponding envelopes. If we put the 4 letters into the envelopes at random, what is the probability that only one letter was into the exact envelope?
4. A fair coin is tossed 5 times. What is the probability of getting at least three heads on consecutive tosses?
5. A fair coin is tossed 6 times. What is the probability of getting no any two heads on consecutive tosses?
6. Randomly, six people A, B, C, D, E, and F sit around a circular table. What is the probability that A is in middle of B and F, B is in the middle of A and C, C is in the middle of B and D, D is in the middle of C and E, E is in the middle of D and F, F is in the middle of A and E?
7. The largest one and the least one of some consecutive integers both are even. If seven of these numbers were even, what is the probability that a number selected at random would be even?



8. Point (x,y) is a point within the triangle. What is the probability that $y < x$?

9. Each of 2 boxes has 3 balls, numbered 1, 2, and 3. If one ball is selected from each of two boxes, what is the probability that the sum of numbers in two balls selected is even?



10. In the rectangle shown above, $AD=6$, $AB=8$. What is the probability that $\angle PD < 45^\circ$?

11. There are 4 letters and 4 corresponding envelopes. If we put the 4 letters into the envelopes at random, what is the probability that only one letter was into the exact envelope?

12. The number of the members of a club is more than 10 and less than 40. When 3 people sit at a table, other people exactly divided to 4-people groups (4 people sit at a table) or 5-people groups (5 people sit at a table). If the members

are divided to 6-people groups, how many people will be left?

13. When a number is divided by 13, quotient is K , remainder is 2; when divided by 17, remainder is 2. What is the remainder when K is divided by 17?

14. Is x^2+y^2 divisible by 5?

1). When $x-y$ is divided by 5, the remainder is 1

2). When $x+y$ is divided by 5, the remainder is 3

15. X is a multiple of 5, $X=p^2 *q$, p and q are integers. Which of the following must be the multiple of 25?

pq , pq^2 , p^2q^2 , p^3q

16. The remainder of 26 divided by k is $k-2$, what value is K ?

(1) $K > 5$

(2) $K < 10$

17. N is an integer, r is the remainder when $(N-1)(N+1)$ is divided by 24. $r=?$

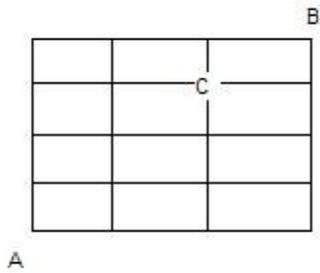
1). N is not a multiple of 2

2). N is not a multiple of 3

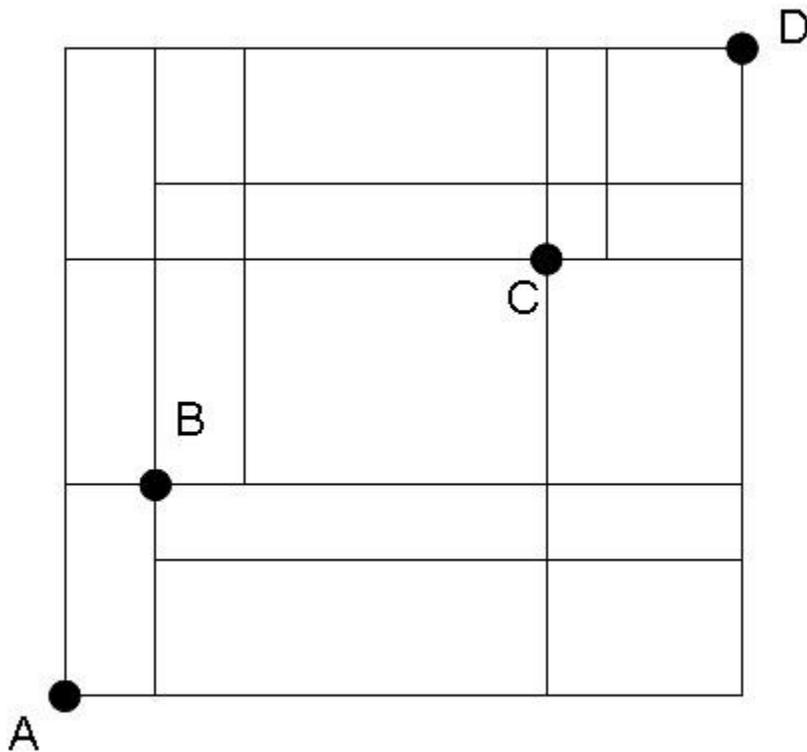
18. p and m are the positive integers, and p is a prime number, if $x^2 - mx + p = 0$ has a positive integer solution, asks what is the value of $(m-p)$?

19. A 4-digit telephone number consists of 3, 4, and 5. If 4, 5 can be used exactly one time, 3 can be used two times,

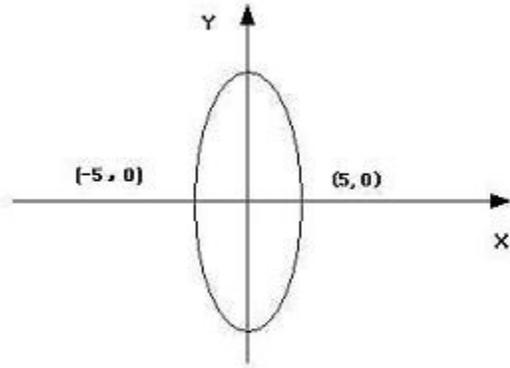
how many such numbers are possible?



20. From A to C to B, how many (shortest) ways are possible?



22. A person starts from A and passes through B and C, arrives D at last. If he go forward only to east and north, in how many way can he finish the trip?



23. On the circle shown above, how many points have both integer x and y ?

24. If 6 different numbers are to be selected from integers 0 to 6, how many 6-digit even integers greater than 300,000 can be composed?

25. A professor will assign seven projects to three students. If two students each got 2 projects, and the other one got 3 projects, how many ways are possible?

26. $X^3 - x = (x - a)(x - b)(x - c)$, and $a > b > c$, $b = ?$

27. The product of all prime numbers from 2 to 29 plus 1 equals K . Which of the following is true?

I. K is divisible by prime number.

II. K has a prime factor greater than 29.

III. P is divisible by 30

28. Five cards are to be selected at random from 10 cards numbered 1 to 10. How many ways are possible that the

average of five numbers selected will be greater than the median?

29. $A_1=2$, $A_2=3$, $A_3=A_1A_2$, $A_4=A_1A_2A_3$,...If $A_n=t$ ($n \geq 3$), is $A_{n+2}=?$

30. When which digit in $467 \cdot 15 \cdot 23$ (not sure about the numbers) is added 1, the product changes least value?
1, 2, 6, 7, 5

31. How many integers between 234700 and 458600 have tens digit 1 and units digit 3?

32. If $x < 0$, in terms of x , $[(x-3)^4]^{1/4} + (-x \cdot \text{absolute value of } x)^{1/2} = ?$

33. The product of the integers from 1 to 8 can be expressed by $2^k \cdot 3^m \cdot 5^j \cdot 7^p$, $k+m+j+p=?$

34. At its constant rate, sluice X drained off $1/2$ amount of water in four hours. Then, X and Y together, at their constant rates, drained off the remaining water in three hours. How many hours will it take for Y to drain off all the water, independently?

35. A right triangle is drawn, the opposite side of right angle is 10, sum of the sides next to right angle is 12. Ask Area?

36. A certain characteristic in a large population has a distribution that is symmetric about the mean m . If 68 percent of the distribution lies within one standard deviation d of the mean, what percent of the distribution is less than $m + d$?

- A. 16%
- B. 32%
- C. 48%
- D. 84%
- E. 92%

37. Someone invested x dollars at simple annual interest, and the investment, including interest will be doubled in $8\frac{1}{3}$ years. What will be the total amount of the investment after 25 years?

38. A total of \$1000 was invested at compounded annual interest rate. At the end of 12 years, the total value will be \$4000. How many years are needed to reach a total of \$8,000?

39. M contains all the prime factors of 770. N is a prime factor of M but is not a prime factor of 770. What is the least possible value of N ?

40. Scale A and B are linear. 24 and 30 in A correspond to 40 and 60 in B (maybe inaccurate). 100 in B correspond to which in A ?

41. $(\sqrt{15+4\sqrt{14}}+\sqrt{15-4\sqrt{14}})^2$

42. T is a set of 30 decimals, sum of which is S . All the decimals are classified to two groups: if the tenth's digit is even, the decimal rounds to the immediate greater integer (For example, $2.2 \Rightarrow 3$); if the tenth's digit is odd, the digits to the right of the decimal point are abandoned (For example, $2.1 \Rightarrow 2$). The sum of these integers is E . If $\frac{1}{3}$ of the decimals have a even tenth's digit, which of the following could be the value of $E-S$?

- I. -16
- II. 6
- III. 10

43. When x is divided by y , the remainder is 9, and $\frac{x}{y}=96.12$, $y=?$

44. The function f is defined for each positive three digit integer n by $f(n)=2^x3^y5^z$, where x,y and z are the

hundreds, tens, and unit digit of n , respectively. If m and v are three-digit positive integer such that $f(m)=9f(v)$, then $m-v=?$

45. A decimal is

0.123456789101112131415161718192021...What is the 100th digit to the right of the point place of the decimal?

46. X is an integer from 1 to 10. $x=?$

1). The tenth digit of $1/x$ is x

2). The hundredth digit of $1/x$ is x

47. I, J, K, Z are positive integers, $1 < I < J < K < Z$,
 $I * J * K * Z = 462$. $Z=?$

48. X is the product of the integers 1 to 8, inclusive. If 2^m is a factor of x , what the greatest possible value of m ?

49. In which range does the deviation of 11, 10, 10, 10, 12, and 12 fall?

50. Each of the students in a class either has 3 pencils and 1 pen, or has 1 pencil and 2 pens; the average of pencils in total class is 1.6, what's the average of pen?

51. If two numbers are selected from 1, 3, 5, 7, 9, 11, 13, 15, 17, and 19 randomly, what is the standard deviation of the new list?

1). The mean remains unchanged.

2). The median of the new list is 10.

52. $0 \leq n \leq 9$, what is the value of n

1). if tenth unit of $1/n$ is zero

2). if unit digit of $1/n \geq n$

53. One person come from A (approximately New York) to B (Chicago) and back from a different way. (Below is a little unclear, but reflected the mentality should be right) The average speed from A to B is 30 kilometers/ hour. What is the average speed of total route?

(1) When he comes back, the average speed is $\frac{2}{3}$ of the speed he comes forth.

(2) The route he comes forth is $\frac{1}{5}$ longer than that of he comes back of the total route.

54. asked whether 30 is a factor of n ?

(1) 30 is a factor of the square of n

(2) 30 is a factor of $2n$

55. Is the perimeter of a triangle greater than 1?

1). Two of the heights are less than $\frac{1}{3}$

2). One of the heights is greater than $\frac{1}{2}$

56. p , q , and r are non-zero number, is line $p*x + q*y=r$ same as $3*x + 5*y=2$?

1). We can get $q=(\frac{5}{3})p$

2). We can get $r=(\frac{2}{3})p$

57. $\{X\}$ denotes the greatest integer less than or equal to X . is $\{X\}=1$?

1). $X>1$

2). $X<2$

58. $[x]$ denotes to be the least integer no less than x . Is $[2d]=0$?

1). $[d]=0$

2). $[3d]=0$

59. Juan bought some paperback books that cost \$8 each and some hardcover books that cost \$25 each. If Juan bought more than 10 paperback books, how many hardcover books did he buy?

1). The total cost of the hardcover books that Juan bought was at least \$150.

2). The total cost of all the books that Juan bought was less than \$260.

60 Gave some numbers about money cost. Is the range of these numbers greater than \$500?

1). The median is \$1,000

2). Standard deviation is \$500

61. If g is the greatest common divisor of $k+7$ and n , where n and k are integers. $g=?$

1) $n=20891$

2) $n=k+6$

62. 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.

63. Does $Y=mX^2+h$ have intersect with axis-x?

1). $m < 0$

2). $h > 0$

64. If n is an integer, is 3^{n+1} divisible by 10?

1). $n=4k+2$

2). $n > 4$

65. Which of X , X^2 , and $1/X$ has the least value?

1). $X > 0$

2). $X < 1$

66. $S_n = S_{(n-2)} + 11$, is 633 a term of the sequence?

1). $S_1 = 39$

2). $S_2 = 43$

67. $Y = a(x-b)^2 + P$. Can you tell if y has intersects with x axis?

1). $a < 0$

2). $P > 0$

68. Each of people voted once in an election, X got 483 from male voters, Y got 433 from female voters. How many votes did X get?

1). X got votes from 50% of male voters

2). Y got votes from 60% of female voters

69. Is deviation of set A greater than that that of B?

1). A's median is greater than that of B

2). A's mean is greater than that of B

70. If $xyz > 0$, is $xy^2z^3 > 0$?

1). $Y > 0$

2). $X > 0$

71. Both a , b , and c are 3-digits integers, where $a=b+c$. Is the hundreds' digit of number a equal to sum of that of b and c ?

- 1). Tens' digit of a =tens' digit of b +tens' digit of c
- 2). Units' digit of a =units' digit of b + units' digit of c

72. Is r/s a terminated decimal?

- 1). r is a factor of 100
- 2). s is a factor of 100

73. Is the range of per capita within 5 and 500?

- 1). Nearest 1,000,000, the volume is 43,000,000,000
- 2). Nearest 1,000,000, the population is 86,000,000.

74. Before dried, a fruit has 99 percent of water. When it has been dried, it has 98 percent of water. If the initial weight of fruit is 100, what is the weight of fruit now?

75. How many positive factors does the number 630 have?

76. If $0 < x < 1$, y is a positive integer, which of the followings is the greatest one?

- 1) $x+y$
- 2) $x-y$
- 3) x/y
- 4) x^y
- 5) $x*y$

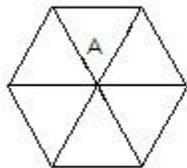
77. If 330 is the factor of the product of the numbers from 1 to n , what is the least value of n ?

78. If r , s , and t are consecutive integers, what is the greatest prime factor of $3^r+3^s+3^t$?

79. A sequence 1,1,2,3,5,8...from the second term, each term is the sum of the previous two terms. How many even numbers in the first 300 terms?

80. What is the sum of the digits of the number $10^{50}-74$?

81. How many integers from 0 to 50, inclusive, have a remainder of 1 when divided by 3?



82. Three segments are drawn from opposite corners of a hexagon to form six triangles. These segments are bisect each other at point A. Are all of the triangles equilateral?

- 1). All six sides of the hexagon are the same length.
- 2). The three segments between the opposite corners are the same length.

83. When $3x^2 + nx + 5 = 0$ has only one solution, $n=?$

84. Is y even?

- 1). $2Y - X = X^2 - y^2$
- 2). X is odd

85. What is the sum of the factors of the sum of 1, 2, 6, and 24?

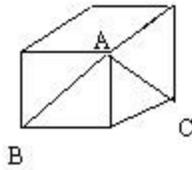
86. $X = U^2 - V^2$; $Y = UV$; $Z = U^2 + V^2$; if $X = 11$, $Z = ?$

- 1). $Y = 30$
- 2). $U = 6$

87. $f(x)$ is a function for all real number, is $f(x^2) \leq (f(x))^2$?

- 1). $f(x) \leq 0$
- 2). If $x \geq 0$, $f(x) = -x$, if $x < 0$, $f(x) = x$

88. Scale A and B are linear. 24 and 30 in A correspond to 40 and 60 in B (maybe inaccurate). 100 in B correspond to which in A?



89. In the cube shown above, what is the measure of angle formed by AB and AC?

90. The side of a cube is measured to be 100cm, with ± 1 centimeter error. What is the largest possible volume error?

91. How many prime factors does x have?

- 1). x is factor of 7200
- 2). 180 is factor of x

92. If b is an integer and $b < 10$, $x = 1 + b/100$. $b = ?$

- 1). $1 \leq b \leq 3$
- 2). The thousandths' digit of $10x^2$ is equal to the tens' digit of x^2

93. x and y are 2-digit integers. What is the difference between two tens' digit?

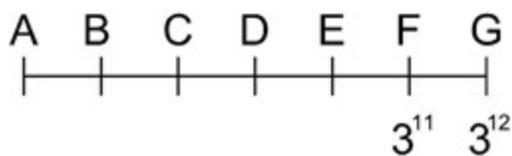
- 1). $x - y = 27$
- 2). Units' digit of x minus the units' digit of y is greater than 3

94. If n is a positive integer and is not the square of any integer, is it a prime number?

- 1). Among the factors of n , only n is greater than $n^{0.5}$
- 2). Among the factors of n , only 1 is less than $n^{0.5}$

95. How many positive factors does N have?

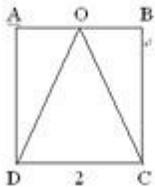
- 1). N^2 has four positive factors.
- 2). $2N$ has three positive factors.



96. Each segment from A to G has equal distance. Which of the following point represents $[-(3^{12})]$?

97. $n = ?$

- 1). The tens' digit of 11^n is 4
- 2). The hundreds' digit of 5^n is 6



98. In the figure shown above, $ABCD$ is a rectangle, $CD = 2$, OCD is an isosceles triangle. Is OCD an equilateral triangle?

- 1). Angle $ADO = 30$ degrees
- 2). The area of $ABCD$ is $2\sqrt{3}$

99. Sequence A consists of 10 consecutive odd numbers and B consists of 5 consecutive even numbers. If the least number in A is 7 greater than the least number in B, the average of the numbers in A is how much greater than average of numbers in B?

Number of Times	Number of people
0	3
1	2
2	10
3	3
4	5
5	3

100. The table above shows number of people corresponding to the number of the times. What is the median of the number of times that at least is one?

101. Set S and T have 100 numbers, respectively. Is standard deviation of S greater than or less than that of T?

- 1). Range of S is greater that of T
- 2). Average of S is greater than that of T

102. In a certain test, how many of the 35 students in a certain class got a score less than 85?

- 1). The average score of all students is 85
- 2). The median score of all students is 85

103. There is a set of number, the mean is m , the standard deviation is R , if add a number x to this set, is $r \leq R$?

- 1) $x=m$
- 2) $m < x < m+R$

104. $d > 1$ (or $d > -1$?)

- 1). Median of $d, -d, 1/d$ is d .
- 2). Median of d, d^2, d^3 is d

105. Is d greater than or equal to 0?

- 1). d is the median of $d, 1/d, -d$
- 2). d^3 is the median of d, d^2, d^3

106. A table question. What is the median?

Number of people	donation
10	\$100,000
10	\$50,000
70	\$10,000
60	\$25,000
50	\$500

107. If s, r, t, u are integers, which one has the same standard deviation as s, r, t, u ?

- A. $|s|, |r|, |t|, |u|$
- B. $s+1, r+1, t+1, u+1$
- C. $2s+s, 2r+2, 2t+2, 2u+2$
- E. $s^2+4, r^2+4, t^2+4, u^2+4$

108. The sum of 10 numbers is 28. If range of these numbers is 2, how many 3 are there?

- I. 0
- II. 5

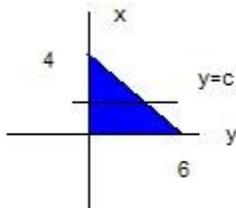
III. 9

	Yes	No	Unsure
A	500	200	100
B	400	300	100

109. In a certain survey, each of 800 people expressed their attitude to A and B. They can say yes, no, or unsure. If 200 people said yes to A but not to B, how many people said yes to either A or B ?

110. In a certain test, a student must answer 8 out of 10 questions. How many choices are there if at least 4 of the first five questions must be answered?

111. Sequence 2, 7, 22,...after the first three terms, each term is three times the previous term plus 1, $a(n+1)=3a_n + 1$. What is the sum of tens digit and tens digit of the 35 term?



112. In the figure shown above, if line $y=c$ divided the triangle equally, $c=?$

113. For integer n , $f(n)$ denotes the remainder when n is divided by integer k . Is k greater than 10?

1). $f(k+32)=8$

2). $f(k+42)=6$

114. If $|x+2| = 2|x-2|$, what is the sum of the solutions of x ?

115. Is $|x-z| > |x-y|$?

1). $|z| > |y|$

2). $0 > x$

116. Of the 360 economists, 75% invested in stock market, 40% invested in bond market, and 15% invested neither stock nor bond. How many of them invested only in stock market?

117. If the smallest number in a set of positive integers is 3, how many numbers does the set have?

1). The average of the set is 6

2). The range of the set is equal to the average of the set

118. If $x > -1$, and $\frac{1}{x^2} + \frac{1}{(x^2-4)} = 0$, x will fall in which of the following ranges?

Answer: between 1 and 2

119. If n is an integer, $x = ?$

1). $9^n = 100,000 * X$

2). $\frac{1}{10} < x < 1$

120. Which of 10^{-3} and 10^{-2} is nearer to number N ?

1). N is nearer 10^{-4} than 10^{-1}

2). N is nearer 10^{-3} than 10^{-1}

121. If $A = 0.abc$, where a , b , and c are digits of A , is A greater than $\frac{2}{3}$?

- 1). $a+b > 14$
- 2). $b+c > 15$

122. $A_n = A_{n-2} + 11$, $n > 2$. Is 633 in the sequence?

- 1) $A_1 = 39$
- 2) $A_2 = 43$

123. Is the standard deviation of a certain set greater than 15,000?

- 1). The range of the set is 25,000
- 2). The mean of the set is 150,000

124. Someone is trying to remember a phone number but cannot remember the whole number. He remembers 286-XXXX. He also remembers that the last 4 numbers must contain two 2 and a 7 and a 9. How many possible combinations are there?

125. In warehouse there are some boxes divided in stacks, each has 12. After adding 60 more, each has 14. How many boxes before adding?

- 1) boxes < 110 before adding
- 2) boxes < 120 after adding

ANSWERS TO THE "GMAT Special Questions"

- 1) $1/8$
- 2) $3/10$
- 3) $1/3$
- 4) $1/4$
- 5) $21/64$
- 6) $1/60$
- 7) $7/13$
- 8) $1/8$
- 9) $5/9$
- 10) $3/8$
- 11) $1/3$
- 12) 5
- 13) ZERO
- 14) C (ASSUMING X&Y R INTEGERS ELSE E)
- 15) $(PQ)^2$
- 16) C
- 17) C
- 18) 1
- 19) 12
- 20) 20
- 21) -
- 22) 36
- 23) 12
- 24) 1680
- 25) 630
- 26) ZERO
- 27) I AND II
- 28) 111
- 29) T^4
- 30) 7
- 31) 2239
- 32) $-2X+3$
- 33) 11
- 34) 24
- 35) 22
- 36) D
- 37) $4X$
- 38) 18
- 39) 3
- 40) 42
- 41) 32
- 42) I & II
- 43) 75
- 44) 20

- 45) 5
- 46) A
- 47) 11
- 48) 7
- 49) B/W 0-3
- 50) 1.7
- 51) E
- 52) D
- 53) C
- 54) C
- 55) B
- 56) C
- 57) C
- 58) B
- 59) C
- 60) B
- 61) B
- 62) B
- 63) C
- 64) E
- 65) C
- 66) A
- 67) C
- 68) B
- 69) E
- 70) A
- 71) E
- 72) B
- 73) E
- 74) 50
- 75) 24
- 76) I
- 77) 11
- 78) 13
- 79) 100
- 80) 440
- 81) 17
- 82) C
- 83) $60^{0.5}$
- 84) C
- 85) ZERO
- 86) D
- 87) D
- 88) 42
- 89) 60
- 90) 3030.1

- 91) C
- 92) B
- 93) -
- 94) D
- 95) A
- 96) D
- 97) E
- 98) D
- 99) 14
- 100) 2
- 101) E
- 102) E
- 103) D
- 104) D(FOR $D > 1$) BUT C (FOR $D < -1$)
- 105) E
- 106) 10000
- 107) B
- 108) -
- 109) 600
- 110) 46
- 111) 4
- 112) $4 + 8^{0.5}$
- 113) A
- 114) -
- 115) $\frac{20}{3}$
- 116) 162
- 117) E
- 118) $2^{0.5}$
- 119) C
- 120) E
- 121) A
- 122) A
- 123) A
- 124) 12
- 125) B