GMAT Club Diagnostic Test

This diagnostic test was put together by dedicated members of the GMAT Club. This is our contribution to the next generation of GMAT Test takers – and in return we only ask for your feedback - let us know how we did and what we can do better. Visit Diagnostic Test Page to download the latest version of the test, get detailed explanations or provide a suggestion to improve this test.

How to use:

Diagnostic test consists of 45 Questions split into 15 sections. Each section consists of 3 questions arranged in an increasing difficulty order: 600-level question, 700-level and 750-level. You have an option to take the full test or you can just take the 600 and 700 level questions and save the 750-level questions. To accurately assess your results, make sure you are spending no more than 2 minutes per question on average. You have 90 minutes to complete the test.

After you are done – please take a minute to share your feedback and scores here. Please include how long it took you to complete the test and which questions you found of interest or problems with.

Thank you and Good Luck on the GMAT,
BB – Founder of GMATCLUB

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You have 90 minutes to complete the test.

ARITHMETIC

ROOTS

1. $\sqrt{324} + \sqrt{289} = ?$

   (A). 32
   (B). 33
   (C). 34
   (D). 35
   (E). 36

2. $\sqrt{36 + 64 + 5^2} + \sqrt{20} = ?$

   A. $19 + \sqrt{20}$
   B. $19\sqrt{20}$
   C. $\sqrt{145}$
   D. $5\sqrt{100} + \sqrt{20}$
   E. $7\sqrt{5}$

3. If x is an integer and $\sqrt{x} \times x - x = a$, which of the following must be true?
   I. a is Even
   II. a is Positive
   III. a is an Integer

   A. I only
   B. II only
   C. III only
   D. I and II
   E. None of the above

POWERS

4. Is X a prime integer?

   (1) X! is not divisible by 5
   (2) |X!| is divisible by 6

   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. Which of the following expressions has the greatest value?

   A. 999^{12}
   B. 10^{30}
   C. 777^{10}
   D. $(-20)^{24}$
   E. $\left(\sqrt{15}\right)^{40}$

6. What is the value of

$$\frac{\left(\frac{1}{8}\right) \times \left(\frac{1}{16}\right)^2 \times 4^4}{\left(\frac{1}{64}\right)^{\frac{1}{2}} \times 2^{-4}} ?$$

A. 16
B. 4
C. 2
D. $\frac{1}{2}$
E. $\frac{1}{16}$

NUMBER PROPERTIES

7. Which of the following numbers is the greatest?

A. $\frac{1876452}{1876455}$

B. $\frac{1883446}{1883449}$

C. $\frac{1883453}{1883456}$

D. $\frac{1883456}{1883459}$

E. $\frac{1883491}{1883494}$

8. If m and n are integers, what is the smallest possible value of integer m if $\frac{m}{n} = 0.36363636...$?

A. 3
B. 4
C. 7
D. 13

E. 22

9. Is x greater than 1?

(1) $\frac{1}{x} > -1$

(2) $\frac{1}{x^5} > \frac{1}{x^3}$

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
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SPECIAL CHARACTERS

10. If S is the sum of the digits of a given number, T is the sum of the digit of S, and G is the sum of digits in T. For example S of 987 is 9+8+7 = 24, T of S is 2+4 = 6 and G of 6 is 6. Therefore G of 987 is 6. Which of the following has the greatest G)?

A. 94123
B. 91964
C. 64678
D. 62355
E. 45689

11. If $N = 1234@$ and @ represents the units digit, is N a multiple of 5?

(1) @! is not divisible by 5
(2) @ is divisible by 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
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E. Statements (1) and (2) TOGETHER are NOT sufficient

12. If $A \, \Omega \, B = A+B$ if $A > B$, and $A \, \Omega \, B = B - A$ if $A < B$, then which of the followings is the highest for

$$\left(\frac{1}{x} \, \Omega \, \frac{1}{y}\right) \Omega \left(\frac{1}{y} \, \Omega \, \frac{1}{x}\right) ?$$

A. $X = \dfrac{1}{2}$ and $Y = \dfrac{1}{3}$

B. $X = \dfrac{1}{3}$ and $Y = \dfrac{1}{4}$

C. $X = \dfrac{1}{4}$ and $Y = \dfrac{1}{5}$

D. $X = \dfrac{1}{5}$ and $Y = \dfrac{1}{4}$

E. $X = \dfrac{1}{4}$ and $Y = \dfrac{1}{2}$

MODULES

13. Which of the following inequalities must be true for the value of x to be between -1 and 5?

A. $|3 - x| < -3$
B. $-1 < |x| < 5$
C. $|x| - 2 > 2$
D. $|2 + x| > 3$
E. $|x - 2| < 3$

14. Is K a positive number?

(1) $|K^3| + 1 > K$
(2) $K + 1 > |K^3|$

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
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15. If p is an integer, what is the value of p?

(1) $(|p|!)^p = |p|!$
(2) $p^p = p^2$

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
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STATISTICS

16. Set T contains more than one element. Is the median of set T greater than its mean?

   (1) Set S has positive range.
   (2) The elements of the set are not consecutive integers

   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
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17. Set *S* consists of N elements. If N>2, what is the standard deviation of *S*?

   (1) The mean and median of the set are equal
   (2) The difference between any two elements of the set is equal

   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. Is the mean of set *S* greater than its median?

   (1) All members of *S* are consecutive multiples of 3
   (2) The sum of all members of *S* equals 75

   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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WORD PROBLEMS

MIN/MAX

19. Ten suits, each priced at a whole number of dollars, have an average price of $350. If the five cheapest suits are priced at $200 or less with at least one of them costing $200, what is the maximum possible price of the most expensive suit?

   A. $890
   B. $1250
   C. $1475
   D. $1694
   E. $2492

20. Three people took GMAT practice tests in which the minimum and maximum possible scores are 200 and 800, respectively. They each took a test 5 times, and no one scored below 500 or over 750. If the individual ranges of the three people's scores in those 5 practice tests were 50, 80 and 120, what is the difference between the maximum and minimum possible ranges of all their scores put together.

    A. 50
    B. 70
    C. 80
    D. 120
    E. 130

21. The price of a product manufactured at a company KTM is given by the following formula: $P = 6 - 0.03x$, where P is the price of a single product, and x is the number of products sold. What is the maximum possible revenue for KTM?

    A. 1000
    B. 600
    C. 400
    D. 300
    E. 100

OVERLAPPING SETS

22. 60% of the San Diego Zoo visitors are single without children, and the rest are married with children. If 25% of the married visitors have multiple children, what percentage of the San Diego Zoo visitors have only one child?

    A. 15
    B. 20

    C. 30
    D. 50
    E. 75

23. Out of 100 people surveyed, 60 were women. If 10 were smoking women and 20 were smoking men, what percentage of men surveyed were non-smokers?

    A. 10
    B. 20
    C. 30
    D. 40
    E. 50

24. Among 60 members of a club, $6p$ players play soccer, $11p$ players play tennis, $8p$ players play golf and $2p$ players play none of the games. If p players play all of the games, how many players play only one game?

(1) The number of players who play soccer and golf but not tennis is half the number of players who play any other combination of two sports
(2) p = 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
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RATE

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25. A bus from city M is traveling to city N at a constant speed while another bus is making the same journey in the opposite direction at the same constant speed. They meet in point P after driving for 2 hours. The following day the buses do the same trip again at the same constant speed. One bus is delayed 24 minutes and the other leaves 36 minutes earlier. If they meet 24 miles from point P, what is the distance between the two cities?

    A. 48
    B. 72
    C. 96
    D. 120
    E. 192

26. A train is traveling at a constant speed and after making three one-hour stops reaches its destination. After waiting an hour it makes a return journey stopping a total of ten times, thirty minutes each but traveling at twice the speed. If both trips took the same amount of time, how many hours was the roundtrip?

    A. 14
    B. 15
    C. 16
    D. 17
    E. 18

27. A cook went to a market to buy some eggs and paid $12. But since the eggs were quite small, he talked the seller into adding two more eggs, free of charge. As the two eggs were added, the price per dozen went down by a dollar. How many eggs did the cook bring home from the market?

    A. 8
    B. 12
    C. 15

    D. 16
    E. 18

WORK

28. It takes computer A 6 hours and 40 minutes to finish a job. If computer B can process the same job in 10 hours, how long will it take, for both computers working together, to finish the job?

    A. 6 hours and 20 minutes
    B. 5 hours and 10 minutes
    C. 4 hours and 40 minutes
    D. 4 hours
    E. 3 hours and 20 minutes

29. Mac can finish a job in M days and Jack can finish the same job in J days. After working together for T days, Mac left and Jack alone worked to complete the remaining work in R days. If Mac and Jack completed an equal amount of work, how many days would have it taken Jack to complete the entire job working alone?

    (1) M = 20 days
    (2) R = 10 days

    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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30. Painters A and B can paint a house working alone in 20 and 30 days respectively. They started painting a house together but then A left after a number of days but then rejoined B before the job was completed. If B worked alone for 5 days and then A and B together completed the work in 4 days, after how many days of working together, did A leave B?

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

MIXTURE

31. How many liters of pure alcohol must be added to a 40-liter solution that is 10% alcohol by volume in order to double the alcohol proportion?

    A. 4
    B. 5
    C. 10
    D. 20
    E. 40

32. A Food and Drug lab has two new samples: a 240 gram cup of drip coffee, which contains 124 mg of caffeine, and a 60 gram cup of espresso, containing 160 mg of caffeine. If a technician were to create a new 120 gram cup sample that contained 50% coffee and 50% espresso, how many mg of caffeine would the new drink contain?

    A. 111
    B. 121
    C. 144

    D. 191
    E. 382

33. A kilogram of nut mixture contains X% chestnuts and Y% walnuts and sells for $7.00/kg. If the ratio of chestnuts is increased by 50% so that the new mixture is sold for $8.00/kg, what is the price of a kg of walnuts?

    A. $1.00
    B. $2.50
    C. $5.00
    D. $7.50
    E. $10.00

GEOMETRY

34. A circle is inscribed in a half circle whose diameter is π. What is the ratio of the area of the half circle to the area not covered by the inscribed circle?

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

35. If vertexes of a triangle are A (5, 0), B (x, y) and C (25, 0), what is its area?

    (1) $|x| = y = 10$
    (2) $x = |y| = 10$

    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

36. If an x meter long rope can enclose (or
cover) a maximum area of 50 square
meters, what is the approximate length of
the rope?

    A. 4
    B. 7
    C. 10
    D. 20
    E. 25

PROBABILITY

37. A jar contains B blue balls, 6B + 10
yellow balls and 2B+5 green balls. If
there are only blue, yellow and green
balls in the jar, what is the probability of
taking out a blue or green ball?

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

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

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

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

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

38. A box has 6 red hats and 5 green hats.
What is the probability of drawing at
least one green hat in two consecutive
drawings if the hat is not replaced?

    A. $\dfrac{10}{11}$

    B. $\dfrac{8}{11}$

    C. $\dfrac{7}{12}$

    D. $\dfrac{5}{13}$

    E. $\dfrac{2}{7}$

39. At a blind taste competition a contestant
is offered 3 cups of each of the 3 samples
of tea in a random arrangement of 9
marked cups. If each contestant tastes 4
different cups of tea, what is the
probability that a contestant does not
taste all of the samples?

    A. $\dfrac{1}{12}$

    B. $\dfrac{5}{14}$

    C. $\dfrac{4}{9}$

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

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

COMBINATIONS

40. Romi has a collection of 10 different books that includes 7 same size small and 3 same size large books. The size of 1 large book is equal to the size of 3 small books. In how many ways can he select books for his trip without wasting space, if he has space available for 1 large and 4 small books?

    A. 35
    B. 56
    C. 127
    D. 196
    E. 252

41. How many triangles and quadrilaterals altogether can be formed using the vertices of a 7-sided polygon?

    A. 35
    B. 40
    C. 50
    D. 65
    E. 70

42. Set X has 5 integers: a, b, c, d, and e. If m is the mean and D, where

$D = \sqrt{\frac{(a-m)^2+(b-m)^2+(c-m)^2+(d-m)^2+(e-m)^2}{5}}$, is the

standard deviation of the set X, is $D>2$?

    (1) a, b, c, d and e are different integers
    (2) m is an integer not equal to any elements of the set X

    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

ALGEBRA

43. If x and y are integers, is $|x| > |y|$?

(1) $|x| = |y + 1|$
(2) $x^y = x! + |y|$

    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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44. $x^2 + y^2 = 100$. All of the following could be true EXCEPT

    A. $|x| + |y| = 10$
    B. $|x| > |y|$
    C. $|x| > |y| + 10$
    D. $|x| = |y|$
    E. $|x| - |y| = 5$

45. 5 boxes are placed in a stack by weight from lightest to heaviest. The heaviest box weighs x kg and then next heaviest weighs x% less than the heaviest box and the next heaviest box weighs x-x% less than the next heaviest and so on. The same ratio is maintained for all the boxes. If the heaviest box weighs 10kg, approximately what percent less weight is the lightest box than the heaviest one?

    A. 30
    B. 40
    C. 50
    D. 60
    E. 70

Answers
For explanations and detailed analysis, visit here:
http://gmatclub.com/forum/gmat-diagnostic-test-quest-for-best-gmat-diagnostic-test-79502.html

#	Your Answer	Official Answer	#	Your Answer	Official Answer
1		D	24		B
2		E	25		E
3		E	26		B
4		E	27		E
5		A	28		D
6		A	29		C
7		E	30		C
8		B	31		B
9		B	32		D
10		E	33		C
11		C	34		E
12		D	35		D
13		E	36		E
14		E	37		C
15		C	38		B
16		E	39		B
17		B	40		C
18		A	41		E
19		E	42		C
20		E	43		C
21		D	44		C
22		C	45		A
23		E			