

ASSOCIATION OF MATHEMATICS TEACHERS OF INDIA

Screening Test – Gauss Contest (NMTTC PRIMARY LEVEL—V and VI Grades)

Saturday, the 7 th October 2023

Instructions:

1. Fill in the Response sheet with your Name, Class and the Institution through which you appear, in the specified places.
2. Diagrams are only Visual guides; they are not drawn to scale.
3. You may use separate sheets to do rough work.
4. Use of Electronic gadgets such as Calculator, Mobile Phone or Computer is not permitted.
5. Duration of Test: 10 am to 12 Noon (Two hours)
6. For each correct response you get 1 mark; for each incorrect response, you lose $\frac{1}{2}$ mark.

1) The value of $\frac{999 \times 999 \times 999}{(999 + 999) \times 111 \times 111}$, when simplified, is

- a) $\frac{999}{2}$ b) $\frac{111}{3}$ c) $\frac{81}{2}$ d) 1000

2) When $4\frac{1}{2}$ is divided by $3\frac{1}{4}$, the result is x . When $3\frac{3}{4}$ is divided by $2\frac{1}{8}$, the result is y . Then the numerical value of $13x + 17y$ is

- a) 38 b) 40 c) 39 d) 48

3) There are 5 cards numbered as shown in the figure. The number of ways in which one can choose 3 or less cards which contain only odd numbers is

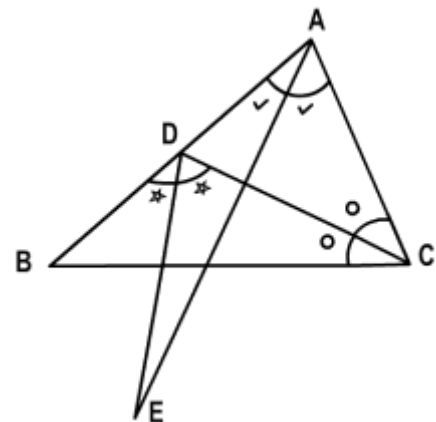


- a) 8 b) 7 c) 3 d) 21

4) ABC is a triangle. The bisector of $\angle C$ meets AB at D . The bisectors of $\angle A$ and $\angle BDC$ meet at E .

Then the measure of $\angle AED$ is

- a) $\frac{\angle C}{2}$ b) $\frac{\angle C}{3}$
c) $\frac{\angle C}{4}$ d) $\frac{\angle C}{5}$



5) Samrud secures 20% of the marks but fails by 30 marks. Saket gets 32% marks which is 42 marks more than the minimum pass marks. The maximum marks in the test would be

- a) 100 b) 200 c) 300 d) 600

6) The greatest number that divides 25, 73 and 97 to leave the same remainder is

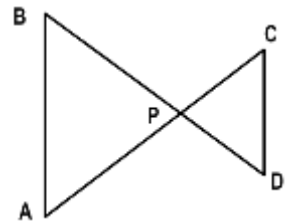
- a) 19 b) 22 c) 24 d) 37

7) If $\frac{19}{7} = a + \frac{2}{a + \frac{b}{c}}$ where a, b, c are natural numbers, then the numerical value of $(a+b+c)$ is

- a) 8 b) 13 c) 12 d) 9

8) In the adjoining figure, two equilateral triangles ABP , CDP are placed such that AB is parallel to CD . If $AB = 3$ cm, $CD = 1$ cm, the area (in cm^2) of trapezium $ABCD$ is

- a) $\sqrt{3}$ b) $\frac{2}{\sqrt{3}}$
 c) $2\sqrt{3}$ d) $4\sqrt{3}$

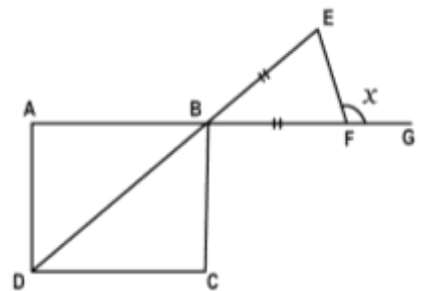


9) Siva found the average of 5 numbers. He got an answer 40 which is wrong because, while listing, instead of writing the number 43 he wrote 48. The correct average must be

- a) 38 b) 39 c) 41 d) 31

10) In the adjoining figure, $ABCD$ is a square. Also $BE = BF$. Then the value of $2x$ (in degrees) is

- a) 210 b) 220
 c) 215 d) 225



11) If the numerator and denominator of a fraction are increased by 20% and 30% respectively, then the fraction becomes $\frac{9}{13}$. If the original fraction is $\frac{p}{q}$, where p and q have no common factors, then $p+q$ is

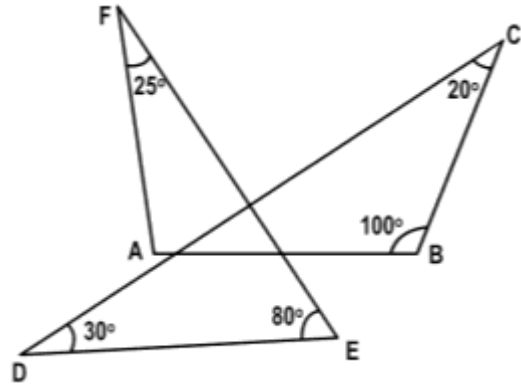
- a) 3 b) 6 c) 7 d) 9

12) Gita divided 360 into 4 parts such that twice the first part, thrice the second part, five times the third part and six times the fourth part are all equal. Then the difference between the third and fourth parts is

- a) 20 b) 15 c) 10 d) 7

13) In the adjoining figure, the degree measure of $\angle FAB$ is

- a) 95° b) 105°
c) 115° d) 125°



14) Consider the following sequence:

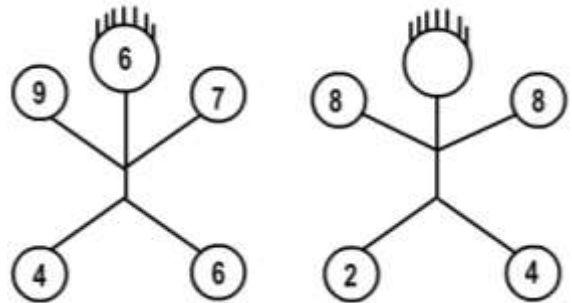
1, 3, 5, 7, 9, 7, 5, 3, 1, 3, 5, 7, 9, 7, 5, 3, 1, 3, 5, 7, 9, 7, 5, 3, 1,

The digit in the 2023rd place is

- a) 3 b) 5 c) 7 d) 1

15) In the two figures, there is a pattern of numbers which are same. Then the number in the head of the second figure,

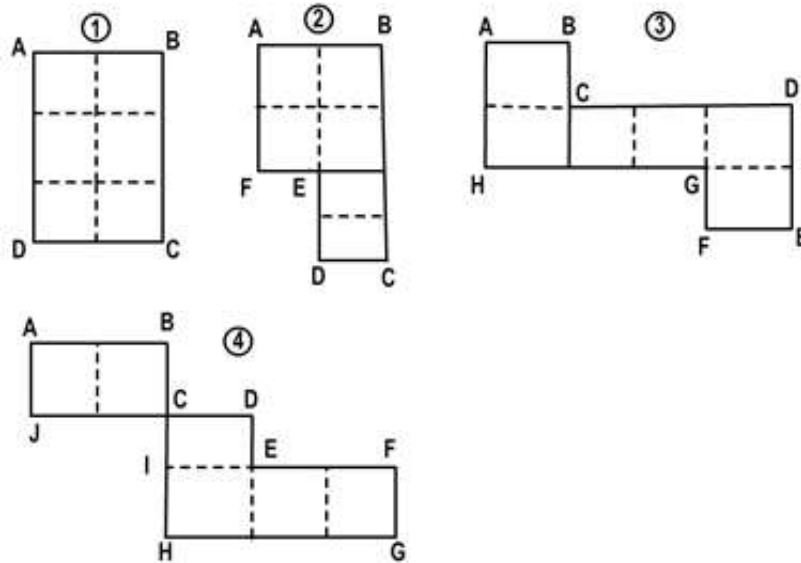
- a) 6 b) 13
c) 8 d) 10



Fill in the blanks

16) There are two cars C_1 and C_2 . The speed of C_1 is 20% less than that of C_2 . They travel a certain equal distance. The percentage of time does C_1 need to travel than C_2 is $x\%$. Then x is = _____.

17) Six equal unit squares are arranged in different shapes as shown in the diagram below:

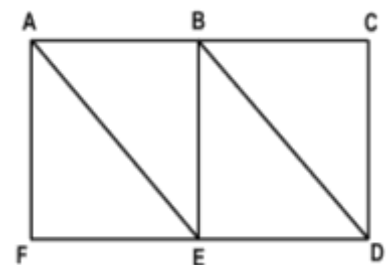


In diagram (1), the perimeter is $ABCD$, which equals 10. Similarly the perimeters of the other shapes also are found out. Let the perimeters be denoted by P_1, P_2, P_3 and P_4 .

Then the value of $(P_1+P_4) - (P_2+P_3)$ is _____.

18) In a two digit number, the digit in the tens place is twice the digit in the units place. If we swap the places of these two digits, a new two-digit number is formed. The sum of these two numbers is 132. The original number is _____

19) An ant starts from A and wants to go to D . It is allowed to go along the lines and pass a line and a point only once. The number of different routes that it can take to go from A to D is _____



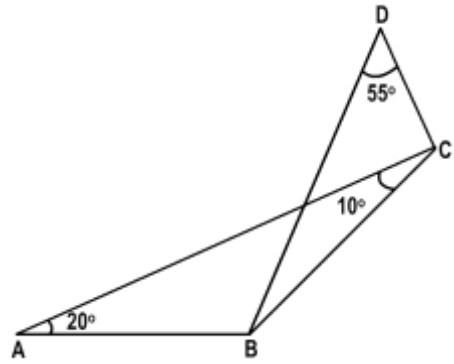
20) Three consecutive natural numbers are taken from 1 to 6. With these three numbers, three digit numbers are formed. The total number of such 3-digit numbers is _____

21) In the adjoining figure,

$$\angle BAC = 20^\circ, \angle BCA = 10^\circ,$$

$$\angle ACD = 90^\circ \text{ and } \angle CDB = 55^\circ.$$

If $\angle ABD = x^\circ$, then $x =$ _____



22) The number of 5-digit numbers of the form

$34a5b$ (where a, b are digits), each of which is divisible by 36 is _____

23) The units digit of the sum of all 2-digit numbers is _____

24) A natural number is taken. One sixth of this number is subtracted from it.

From the resulting number, half of the number is taken and from this number one fifth is taken. If the resulting number is 3, then the original number taken is _____.

25) The least number that is added to 2716321 to make it exactly divisible by 3456 is _____.

End of Question Paper.