

CLASS24

PAPER CODE

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FORM NUMBER

Genius Seed Program

(ACADEMIC SESSION 2023 – 2024)

National Mathematics Talent Contest 2023

MOCK TEST – 1 (PRIMARY)

Time : 3 Hours

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

- Rulers and compasses are allowed.
- Answer all questions. Each question carries 10 marks.
- Elegant and innovative solutions will get extra marks.
- Diagrams and justification should be given wherever necessary.
- Before answering, fill in the FACE SLIP completely.
- Your 'rough work' should be in the answer sheet itself.
- The maximum time allowed is THREE hours.

Name of the Candidate (in Capitals) _____

Form Number : _____

Centre of Examination (In Capitals) : _____

Candidates's Signature :

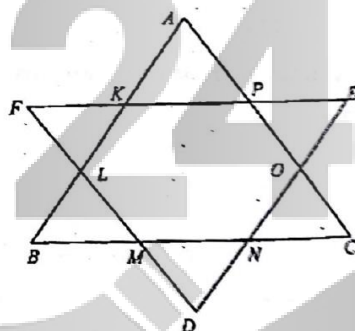
Invigilator's Signature :

Prepare to be a Winner with Class24

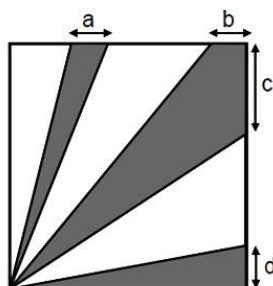
Time : 3 hours**Mathematics : Mock Test -1**

1. (i) Find the total number of digits in the number 1234 ... 2021 2022 2023.

(ii) Find the sum of all the numbers representing the dates of the 12 months from January to December 2024.
2. ABC is an equilateral triangle. The pair of points (K, L) (M, N) and (O, P) divide the sides AB, BC and CA respectively into three equal parts. The lines through (K, P), (L, M) and (N, O) enclose the triangle DEF as shown in the figure. Prove that the triangle DEF is equilateral.



3. Inside a square of area 36 cm^2 , there are shaded regions as shown. The ratio of the shaded area to the unshaded area is 3 : 1. What is the value of $a + b + c + d$ where a, b, c, d are the lengths of the bases of the shaded regions ? Further, if three of a, b, c, d are equal integers and one different, then find them.



4. A, M, T, I represent different non-zero digits, It is given that

$$A + M + T + I = 11$$

$$A + M + I = 10$$

$$A + M = I$$

Further in the following addition only one digit is given.

$$\begin{array}{r} A M T I A M T I \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A M T I A M T \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A M T I A M \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A M T I A \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A M T I \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A M T \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A M \\ + \\ \hline \end{array}$$

$$\begin{array}{r} A \\ + \\ \hline \end{array}$$

$$\begin{array}{r} * * * * 5 * * * \\ + \\ \hline \end{array}$$

Fill up the stars writing proper reasons.

5. There are 4 girls and 2 boys of different ages. The eldest is 10 years old while the youngest is 4 years old. The older of the boys is 4 years older than the youngest of the girls. The oldest of the girls is 4 years older than the youngest of the boys. What is the age of the oldest of the boys?
6. (i) Two numbers are respectively 20% and 50% more than a third number. What percentage is the first of the second?
- (ii) Three vessels of sizes 3 litres, 4 litres and 5 liters contain mixture of water and milk in the ratio 2:3, 3:7 and 4:11 respectively. The contents of all the three vessels are poured into a single vessel. What is the ratio of water to milk in the resultant mixture?