M Prakash Institute **IX Entrance Test 2**
19 January 2025, 10 am to 12 noon **Type AB**

All questions carry equal marks. *Total Marks 100*

1. LCM of two natural numbers is 495 and HCF is 5 . If the sum of the numbers is 100 , find out the difference between the two numbers.

2. $\frac{1}{\sqrt{9}-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}+\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-\sqrt{4}}=?$

3. 7 men can complete a work in 12 days. They started the work and after 6 days, 1 of the men left. In how many days will the remaining work be completed by the remaining men?

4. A girl was lying on a bed and playing with her pearl necklace. The thread broke and some pearls fell down, if $1/3^{\text{rd}}$ fell to the ground, $1/5^{\text{th}}$ on the bed, $1/6^{\text{th}}$ in her hand, $1/10^{\text{th}}$ in her lap and the necklace still had 6 pearls in it. How many pearls were there in the necklace, originally?

5. The product of the digits of a two digit number is one third of that number. If we add 18 to the original number, we get a number consisting of the same digits written in the reverse order. Find the original number.

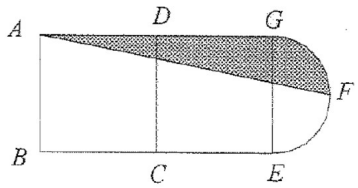
6. David gets on the elevator at the 11th floor of a building and rides up at the rate of 57 floors per minute. At the same time, Albert gets on an elevator at the 51st floor of the same building and rides down at the rate of 63 floors per minute. If they continue travelling at these rates, then at which floor will their paths cross?

7. The average temperature in degree Fahrenheit of the town in the first 4 days of the month was 58, the average for the second, third, fourth and fifth days was 60. If the temperatures of the first and fifth days were in the ratio 7:8 then what was the temperature on the 5th day?

8. Amartya, Abhijeet, and Arun invest in a 5 : 6 : 7 ratio with interest rates in a 2 : 3: 4 ratio. If Abhijeet earns 10 rupees more than Amartya, find total interest earned by all 3.

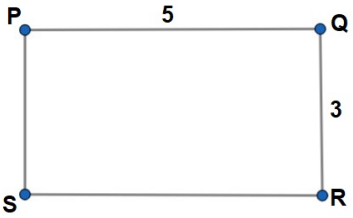
9. The area of a right angled triangle is 24 sq . units and one side (not hypotenuse) of the triangle measures 6 units, find the perimeter of the triangle.

10. In the figure, the squares $ABCD$ and $DCEG$ both have the same area of 64 Square units. EFG is a semicircle. The point F is the mid-point of the arc EFG. If the area of the shaded part is $4\pi + K$. Report K



11. Given that $A^4 = 75600 \times B$. If A and B are positive integers, find the smallest value of B. Report sum of the digits of B

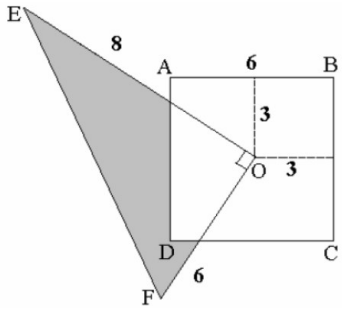
12. On a rectangular table $PQRS$ of 5 units long and 3 units wide, a ball is rolled from point P at an angle of 45° to PQ and bounces off SR at an angle of 45°. The ball continues to bounce off the sides at 45° until it reaches R. How many times has the ball bounced?



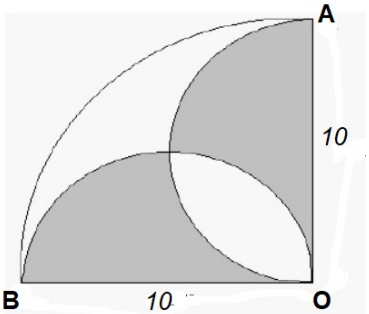
13. In $\triangle ABC, D$ is the midpoint of AB, E is the midpoint of BC, F is the midpoint of BE and area of $\triangle DCF = 24$. Find the area of $\triangle ABC$.

14. If the number $A1999311B$ is divisible by 72 , find the positive difference between A and B .

15. In the figure, $ABCD$ is a 6×6 square with centre O . EOF is a right-angled triangle with $OE = 8$ and $OF = 6$. Find the area of the shaded region.



16. Suppose OB and OA are diameters of the semicircles and $OB = OA = 10$, $m\angle AOB = 90$ is a right angle. A and B are two points on the circumference of circle of radius OA. Find the area of the shaded region.



17. If $x^3 = 1999$ and $y^2 = 1999$, where $x, y > 0$, find the number of integers between x and y .

18. All the angles of a hexagon are 120 degrees and four consecutive sides have lengths of 5, 7, 4, and 6 units. Find the sum of the lengths of the other two sides.

19. When $24, 56, 104$ are divided by a positive integer k , they leave the same remainder. What is the greatest possible value of k ?

20. Find the 2025^{th} decimal digit when $\frac{1}{14}$ is expressed in decimal form.

Answer Key

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
10	5	7	30	24	30	64	56	24	24	21	6	64	1	15	50	32	11	16	1