

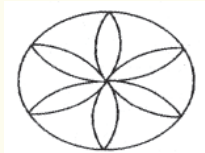
Bose Einstein Scholarship Test



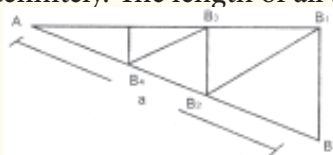
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Sample Question for Class - 5

- A three-digit number ABC is a perfect square and the number of factors of this number is also a perfect square. If $(A+B+C)$ is also a perfect square, then what is the number of factors of the 6 digit number ABCABC?
 - 32
 - 52
 - 72
 - Cannot be determined
- How many divisors of 105 will have atleast one zero at its end?
 - 9
 - 12
 - 15
 - 25
- Let $1^i 2^j 3^k 100 V V V \dots V$ be hundred positive integers such that $1^{11} 12^{13} V + V + V + \dots = K$, where K is a constant and $i = 1, 2, 3, \dots, 97$. If $3^V = 9$, then what is the value of 99^V ?
 - 9
 - $K-9$
 - $(K/2-9)$
 - Cannot be determined
- In the above question, if $5^V = 7$, then what is the value of 90^V ?
 - 7
 - $K-7$
 - $(K-7)/2$
 - Cannot be determined
- abcd is a four-digit number in base 7 such that $2(abcd) = bcda$. ($a, b \neq 0$) Find the value of a,
 - 1
 - 2
 - 3
 - Cannot be determined
- Two vessels contain equal quantities of 40% alcohol Anil changed the concentration of the first vessels to 50% by adding extra quantity of pure alcohol. Balu changed the concentration of the second vessels to 50% replacing a certain quantity of the solution with pure alcohol. By what percentage is the quantity of alcohol added by Anil more than that replaced by Balu?
 - 20%
 - 25%
 - 40%
 - Cannot be determined
- A shopkeeper purchases a packet of 50 pens at Rs 10 per pen. He sells a part of the packet at a profit of 30%. On the remaining part, he incurs a loss of 10%. If his overall profit on the whole packet is 10%, the number of pens he sold at profit is
 - 25
 - 30
 - 20
 - 15
- In the figure given below a flower is inscribed in a circle of radius 1 cm, then find the area of the flower.



- $\left(\pi - \frac{3\sqrt{3}}{2}\right)cm^2$
 - $(2\pi - 3\sqrt{3})cm^2$
 - $\left(\frac{5\pi}{3} - \frac{5\sqrt{3}}{2}\right)cm^2$
 - $(4\pi - 3\sqrt{3})cm^2$
- In the figure given below, two rays are drawn through a point A at an angle of 30° . A point B is taken on one of them at a distance of 'a' from the point A. A perpendicular is drawn from the point B to the other ray, and another perpendicular is drawn from its foot to meet AB at another point from where the similar process is repeated indefinitely. The length of all such lines will be



- $a(1-\sqrt{3})$
- $2a(2+\sqrt{3})$
- $\frac{3}{2a}$
- a