Bose Einstein Scholarship Test

An endeavour of International Research Scholars and Mentors with JMMC Research Foundation

Sample Question for Class - 6

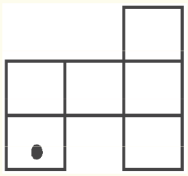
1. Let x, y, z, w be positive real numbers which satisfy the two conditions that
(i) If $x > y$, then $z > w$ and (ii) If $x > z$, then $y < w$
One of the following statements given below is a valid conclusion.Which one is it?
(a) If $x < y$ then $z < w$ (b) If $x < z$ then $y > w$
(c) If $x > y + z$ then $z < y$ (d) If $x > y + z$ then $z > y$

2. Let $N = \dfrac{3\times5\times7\times.....\times99}{2\times4\times6\times.....\times100}$

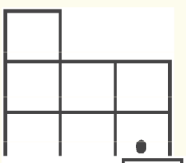
Then which of the following is true regarding the value of N?
(a) $1/3 < N < \frac{1}{2}$ (b) $\frac{1}{5} < N < \frac{1}{4}$
(c) $1/15 < N < \frac{1}{10}$ (d) $\frac{1}{10} < N < \frac{1}{5}$

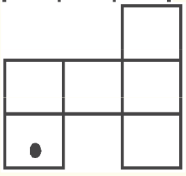
3. John Nash, an avid mathematician, had his room construced such that the floor of the room was an equilateral triangle in shape instead of the usual rectangular shape. One day he brought home a bird and tied it to one end of a string and then tied the other end of the string to one of the corners of his room. The next day. he untied the other end of the string from the cornner of the room and tied it to a point exactly at the center of the floor of the room. Assuming that the dimensions of the room are relatively large compared to the length of the string, find the number of times, by which the maximum possible space in which the bird can fly increase.
(a) 4 (b) 5 (c) 6 (d) 7

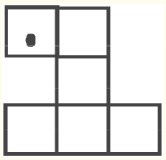
4. Match **List I** with **List II**, with respect to different actions done on the figure



List I **List II**

A.  P. Translation

B.  Q. Rotation

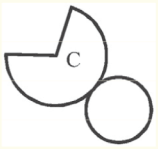
C. 

R. Deviation

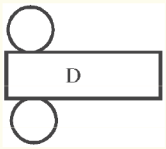
S. Reflection

(a) A-P, B-Q, C-R (b) A-S, B-R, C-Q (c) A-S, B-P, C-Q (d) none of these

Dirction (Question 14 to 15) : Which shapes will be formed if shapes 'C' and 'D' are cut and folded along the bounderies, but leaving the 'circles' attached.

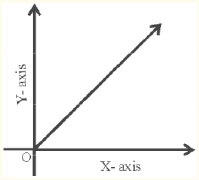
5. 

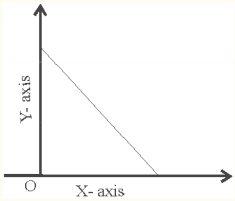
(a) sphere (b) cylinder (c) cone (d) pyramid

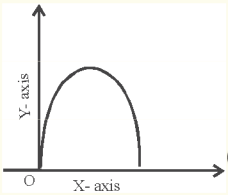
6. 

(a) sphere (b) cone (c) pyramid (d) cylinder

7. Which one of the following is the approximated graph for the equation: y = mx, [where m is a constant whose value is unity]

(a) 

(b) 

(c) 

(d) None of these

8. Statement 1 : The cube of a number is that number raised to the power 3

Statement 2 : A natural number 'n' is a perfect cube if $n = m^3$ for some natural number 'm'

Statement 3 : The cube of an even natural number is even

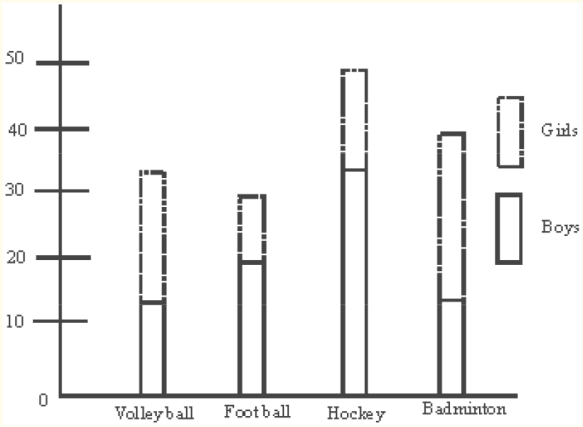
Statement 4 : The cube of an odd natural number is odd.

State whether the above statements are correct or incorrect.

(a) Statements 1, 2 and 3 are correct (b)Statement 2, 3 and 4 are correct

(c) All Statements are correct (d) Only Statements 1 and 3 are correct

9. According to the following graph, least popular game among girls is



(a) Volleyball (b) Football (c) Hockey (d) Badminton