

# SAMPLE QUESTIONS FOR SECOND INTRA SCHOOL MATHEMATICS OLYMPIAD 2011

## CLASS VI QUESTIONS

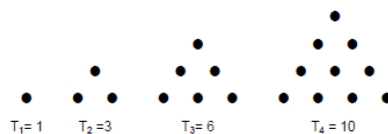
1. In how many different ways can the coaches of a three coach train be arranged?
2. Kaitrina has some hens and some rabbits. The animals have a total of 50 heads and 140 legs.

How many rabbits does kaitrina have?

3. Deepika opened her maths book and found that the sum of the page numbers of the two facing pages was 243. What is the number of the page on the left hand side?

4. When Salman Khan arrives at a petrol station, the petrol gauge of his car shows that the tank is  $\frac{1}{4}$  full. After putting in 25 litres of petrol, the gauge shows that the tank is  $\frac{3}{4}$  full. What is the capacity, in litres, of the petrol tank?

5. Study the following pattern. Which number is T<sub>8</sub>?



## SOLUTIONS

1.

List all the possible variations/permutations.

Calculation: 123; 132; 213; 231; 312; 321   So, total of 6 possibilities.

2.

Each of the 50 animals must have at least 2 legs. Every pair of extra legs must belong to a rabbit.

Calculation:  $[140 - (50 \times 2)] \div 2 = 20$    So, 20 rabbits.

3.

The two page numbers must be consecutive numbers. Subtract 1 from the sum and divide by two to get the page number of the left-hand side.

Calculation:  $(243 - 1) \div 2 = 121$    So, 121

4.

Determine what fraction of the capacity of the tank is 25 litres.

Calculation:  $\frac{3}{4} - \frac{1}{4} = \frac{1}{2}$ . Half capacity of the tank is 25 litres, therefore the capacity of the whole tank is 50 litres.

5.

$T_1 = 1$ ;  $T_2 = 1 + 2$ ;  $T_3 = 1 + 2 + 3$ ;  $T_4 = 1 + 2 + 3 + 4$ .

Calculation:  $T_8 = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36$