

## Answer on Question #61544 – Math – Statistics and Probability

### Question

4. A man kept 6 black, 5 brown and 7 purple shirts in a drawer. What is the probability of his picking a black shirt with his eyes closed?

7/11

7/18

5/11

1/3

### Solution

The number of black shirts is 6 and the total number of shirts is 18 (6+5+7=18), then the probability of his picking a black shirt with his eyes closed is

$$P = \frac{6}{18} = \frac{1}{3}$$

**Answer:**  $\frac{1}{3}$ .

### Question

5. In how many ways can the word "HOSPITAL" be arranged?

45040

120

924

40320

### Solution

The word "HOSPITAL" consists of 8 different letters.

Number of ways is

$$P_8 = 8! = 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 40320$$

**Answer:** 40320.

### Question

6. In how many ways can the word "TOPOLOGY" be arranged?

6720 ways

56 ways

84 ways

21 ways

### Solution

The word "TOPOLOGY" contains 1 letter "T", 3 letters "O", 1 letter "P", 1 letter "L", 1 letter "G" and 1 letter "Y". Use the formula of the number of multiset permutations:

$$P(1,3,1,1,1,1) = \frac{8!}{1! \cdot 3! \cdot 1! \cdot 1! \cdot 1! \cdot 1!} = \frac{8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}{3 \cdot 2 \cdot 1} = 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 = 6720$$

**Answer:** 6720 ways.