Answer on Question #72100 – Math – Statistics and Probability

Question

If a list of 20 individuals who volunteered to supply blood, when it is needed for transfusion, has 15 individuals of type B blood and 3 individuals are selected random from the list, what is the probability that:

a) All 3 will be type B,
b) 2 will be of type B and 1 will not,
c) at least 1 will be of type B

Solution

a) $P(3B) = \frac{{}_{15}C_3}{{}_{20}C_3} = \frac{455}{1140} = 0.399;$

b) $P(2B) = \frac{{}_{15}C_2 \times {}_5C_1}{{}_{20}C_3} = \frac{105 \times 5}{1140} = 0.461;$

c) P(at least one B) = 1 – P(no B);

$P(\text{no B}) = \frac{{}_5C_3}{{}_{20}C_3} = \frac{10}{1140} = 0.009;$

P(at least one B) = 1 – 0.009 = 0.991

Answer: a) 0.399; **b)** 0.461; **c)** 0.991.