**Answer on Question #67012, Math / Statistics and Probability.**

We will use the formula
$$P(A \cap B) = P(A)P(B \mid A).$$
$A$ is the evens such that the first drawing will give 3 black balls.
$B$ is the evens such that the second drawing will give 3 blue balls.

Then $P(A) = \dfrac{\binom{3}{5}}{\binom{3}{13}} = \dfrac{\dfrac{5!}{3!\,2!}}{\dfrac{13!}{3!\,10!}} = \dfrac{5!\,10!}{2!\,13!} = \dfrac{3 \cdot 4 \cdot 5}{11 \cdot 12 \cdot 13} = \dfrac{5}{11 \cdot 13}$,

$P(B \mid A) = \dfrac{\binom{3}{8}}{\binom{3}{10}} = \dfrac{\dfrac{8!}{3!\,5!}}{\dfrac{10!}{3!\,7!}} = \dfrac{8!\,7!}{5!\,10!} = \dfrac{6 \cdot 7}{9 \cdot 10} = \dfrac{7}{3 \cdot 5}$.

Therefore
$$P(A \cap B) = P(A)P(B \mid A) = \dfrac{5}{11 \cdot 13} \cdot \dfrac{7}{3 \cdot 5} = \dfrac{7}{3 \cdot 11 \cdot 13} = \dfrac{7}{429} = 0.01632.$$

Hence the probability that the first drawing will give 3 black balls and the second 3 blue balls is $0.0163$.