Ovo je klasičnvi problem uzimanja uzoraka. Ovdje je univerza skup $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, koju ćemo podijeliti u tri klase $A_1 = \{1\}$, $A_2 = \{3, 4, 5, 6\}$ i $A_3 = \{2, 7, 8, 9, 10\}$. Dakle, imamo $n = 10$, $n_1 = 1$, $n_2 = 4$ i $n_3 = 5$. Uzorak od $m = 6$ karata treba da sadrži $m_1 = 1$ kartu iz klase A_1, $m_2 = 3$ karte iz klase A_2 i $m_3 = 2$ karte iz klase A_3.

a) Ukoliko se karta ne vraća nazad u paket, ponavljanje nije dozvoljeno, tako da je tražena vjerovatnoća

$$p = \frac{6!}{1!\cdot 3!\cdot 2!}\frac{1^{(1)}4^{(3)}5^{(2)}}{10^{(6)}} = \frac{6\cdot5\cdot4\cdot3\cdot2\cdot1}{1\cdot3\cdot2\cdot1\cdot2\cdot1}\cdot\frac{1\cdot4\cdot3\cdot2\cdot5\cdot4}{10\cdot9\cdot8\cdot7\cdot6\cdot5} =$$

$$= \frac{6}{3\cdot2}\cdot 5\cdot 4\cdot 3\cdot\frac{2}{2}\cdot\frac{2\cdot5}{10}\cdot\frac{3}{9}\cdot\frac{4}{8}\cdot\frac{1}{7\cdot5}\cdot\frac{2}{6} = 1\cdot5\cdot4\cdot3\cdot1\cdot1\cdot\frac{1}{3}\cdot\frac{1}{2}\cdot\frac{1}{7\cdot5}\cdot\frac{1}{3} =$$

$$= 4\cdot\frac{3}{3}\cdot\frac{2}{2}\cdot\frac{5}{7\cdot5}\cdot\frac{1}{3} = 4\cdot\frac{3}{3}\cdot\frac{2}{2}\cdot\frac{5}{7\cdot5}\cdot\frac{1}{3} = 4\cdot1\cdot1\cdot\frac{1}{7}\cdot\frac{1}{3} = \frac{4}{21} \approx 19\,\%$$

Isti rezultat možemo dobiti i pomoću formule

$$p = \frac{C(1,1)\,C(4,3)\,C(5,2)}{C(10,6)} = \frac{\frac{1}{1}\cdot\frac{4\cdot3\cdot2}{1\cdot2\cdot3}\cdot\frac{5\cdot4}{1\cdot2}}{\frac{10\cdot9\cdot8\cdot7\cdot6\cdot5}{1\cdot2\cdot3\cdot4\cdot5\cdot6}} = \frac{1\cdot4\cdot\frac{3\cdot2}{2\cdot3}\cdot5\cdot\frac{4}{2}}{\frac{10}{2\cdot5}\cdot\frac{9}{3}\cdot\frac{8}{4}\cdot7\cdot\frac{6}{6}\cdot5} =$$

$$= \frac{4\cdot1\cdot5\cdot2}{1\cdot3\cdot2\cdot7\cdot1\cdot5} = 4\cdot\frac{5\cdot2}{2\cdot5}\cdot\frac{1}{3\cdot7} = \frac{4}{21} \approx 19\,\%$$

b) Ukoliko se karta vraća nazad u paket, ponavljanje je dozvoljeno, tako da je tražena vjerovatnoća

$$p = \frac{6!}{1!\cdot3!\cdot2!}\left(\frac{1}{10}\right)^1\left(\frac{4}{10}\right)^3\left(\frac{5}{10}\right)^2 = \frac{6\cdot5\cdot4\cdot3\cdot2\cdot1}{1\cdot3\cdot2\cdot1\cdot2\cdot1}\cdot\frac{1^1\cdot4^3\cdot5^2}{10^6} = \frac{6}{3\cdot2}\cdot5\cdot4\cdot3\cdot\frac{2}{2}\cdot\frac{2^6\cdot5^2}{10^6} =$$

$$= 1\cdot5\cdot4\cdot3\cdot1\cdot\frac{2^6\cdot5^2}{10^6} = 3\cdot\frac{2^8\cdot5^3}{10^6} = 3\cdot2^5\cdot\frac{2^3\cdot5^3}{10^6} = 3\cdot2^5\cdot\frac{10^3}{10^6} =$$

$$= 3\cdot2^5\cdot\frac{1}{10^3} = 3\cdot2^5\cdot\frac{1}{2^3\cdot5^3} = \frac{3\cdot2^2}{5^3} = \frac{12}{125} \approx 9.6\,\%$$