

$$\begin{aligned}
& \binom{7}{2 \ 2 \ 3} \left(\frac{1}{6}\right)^2 \left(\frac{1}{6}\right)^2 \left(\frac{4}{6}\right)^3 \\
&= \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 1 \times 2 \times 1 \times 3 \times 2 \times 1} \left(\frac{1}{6}\right)^2 \left(\frac{1}{6}\right)^2 \left(\frac{4}{6}\right)^3 = 0.0480.
\end{aligned}$$