

Solution for exercise 1.4.9 in Pitman

Question a) In scheme A all 1000 students have the same probability ($\frac{1}{1000}$) of being chosen. In scheme B the probability of being chosen depends on the school. A student from the first school will be chosen with probability $\frac{1}{300}$, from the second with probability $\frac{1}{1200}$, and from the third with probability $\frac{1}{1500}$. The probability of choosing a student from school 1 is $p_1 \cdot \frac{1}{100}$, thus $p_1 = \frac{1}{10}$. Similarly we find $p_2 = \frac{2}{5}$ and $p_3 = \frac{1}{2}$.