$$p_{uni} = 1 - \prod_{i=1}^{m-1} \left(1 - \frac{i}{n} \right)$$

$$\geq 1 - \exp\left(-\sum_{i=1}^{m-1} \frac{i}{n} \right) = 1 - \exp\left(-\frac{(m-1)m}{2n} \right).$$