

Question 10.13.3.31

An integer is chosen between 0 and 100. what is the probability that it is

(a) divisible by 7 (b) not divisible by 7

**Solution:** Let  $X$  be a random variable such that

$$X = \begin{cases} 0 & n\%7 \neq 0 \\ 1 & n\%7 = 0 \end{cases} \quad (1)$$

$$\text{Hence, } \Pr(X = 1) = \frac{14}{99} \quad (2)$$

$$\Pr(X = 0) = 1 - \Pr(X = 1) \quad (3)$$

$$= \frac{85}{99} \quad (4)$$