Question 10.13.3.31
An integer is choosen 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

$$X = \begin{cases} 0 & n \not\equiv 0 \pmod 7 \\ 1 & n \equiv 0 \pmod 7 \end{cases} \tag{1}$$

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

$$\Pr(X = 0) = 1 - \Pr(X = 1) \tag{3}$$

$$= \frac{85}{99} \tag{4}$$