Assignment -2 in LaTeX

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Question 10.13.1.26: A school has five houses A, B, C, D and E. A class has 23 students, 4 from house A, 8 from house B, 5 from house C, 2 from house D and rest from house E. A single student is selected at random to be the class monitor. The probability that the selected student is not from A, B and C is
Solution: Total no of students=23

House	A	B	C	D	E
Students	4	8	5	2	4

TABLE 0: Student distribution in each house

$$X = \begin{cases} 0, & \text{if student is from A,B and C} \\ 1, & \text{if student is not from A,B and C} \end{cases} \tag{1}$$

With reference to Table 0

$$p_X(0) = \Pr(A) + \Pr(B) + \Pr(C) \tag{2}$$
$$= \frac{4}{23} + \frac{8}{23} + \frac{5}{23} \tag{3}$$
$$= \frac{17}{23} \tag{4}$$
$$p_X(1) = 1 - p_X(0) \tag{5}$$
$$= 1 - \frac{17}{23} \tag{6}$$
$$= \frac{6}{23} \tag{7}$$

Therefore,probabilty of not selecing a student from A,B and C is

$$p_X(1) = \frac{6}{23} \tag{8}$$