

AI1103 - Assignment 1

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Download all python codes from

[https://github.com/Vojeswitha05/
Probability_AI1103/blob/main/simulation_1.
py](https://github.com/Vojeswitha05/Probability_AI1103/blob/main/simulation_1.py)

and latex-tikz codes from

[https://github.com/Vojeswitha05/
Probability_AI1103/blob/main/latex_1.tex](https://github.com/Vojeswitha05/Probability_AI1103/blob/main/latex_1.tex)

1 MISC PROBLEM 6.26

Evaluate $\Pr(A + B)$, if $2\Pr(A) = \Pr(B) = \frac{5}{13}$ and $\Pr(A/B) = \frac{2}{5}$

2 SOLUTION

By definition,

$$\Pr(A/B) = \frac{\Pr(AB)}{\Pr(B)} \quad (2.0.1)$$

Substituting the values,

$$\frac{2}{5} = \frac{\Pr(AB)}{5/13} \quad (2.0.2)$$

$$\Pr(AB) = \frac{2}{13} \quad (2.0.3)$$

$$\Pr(A + B) = \Pr(A) + \Pr(B) - \Pr(AB) \quad (2.0.4)$$

Substituting the values,

$$\Pr(A + B) = \frac{5}{26} + \frac{5}{13} - \frac{2}{13} = \frac{11}{26} \quad (2.0.5)$$