

# AI5002 - Assignment 8

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Download code and LaTeX from below hyperlinks

1. [Codes/MiscDist\\_5\\_15.py](#)
2. [LaTeX](#)

Thus X is NOT a valid probability distribution.

From figure iv) we see that, the sum of probabilities is  $= 0.3 + 0.2 + 0.4 + 0.1 + 0.05 = 1.05 \neq 1$ .

Thus X is NOT a valid probability distribution.

## Problem 5.15

State which of the following are not the probability distributions of a random variable. Give reasons for your answer.

i)

<b>X</b>	0	1	2
<b>P(X)</b>	0.4	0.4	0.2

ii)

<b>X</b>	0	1	2	3	4
<b>P(X)</b>	0.1	0.5	0.2	-0.1	0.3

iii)

<b>X</b>	-1	0	1
<b>P(X)</b>	0.6	0.1	0.2

iv)

<b>X</b>	3	2	1	0	-1
<b>P(X)</b>	0.3	0.2	0.4	0.1	0.05

## Solution

From figure i) we see that, the sum of probabilities is  $= 0.4 + 0.4 + 0.2 = 1$ .

Thus X is a valid probability distribution.

From figure ii) we see that, a negative probability is given which is impossible.

Thus X is NOT a valid probability distribution.

From figure iii) we see that, the sum of probabilities is  $= 0.6 + 0.1 + 0.2 = 0.9 \neq 1$ .