

# Some Questions Based on Discrete Probability Distributions

Data Science and A.I. Lecture Series

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PostNetwork Academy

# Problem-1

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## Problem-2

Given the probability distribution:

$X$	$P(X)$
0	$\frac{1}{10}$
1	$\frac{3}{10}$
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Let  $Y = X^2 + 2X$ . Find the probability distribution of  $Y$ .

- Computed values of  $Y$ :

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**An urn contains 3 white and 4 red balls. 3 balls are drawn one by one with replacement. Find the probability distribution of the number of red balls.**

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- Possible values:  $X = 0, 1, 2, 3$ .
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- $P(X = 2) = P(R_1 R_2 W_3) + P(R_1 W_2 R_3) + P(W_1 R_2 R_3)$
- $= 3 \times \left(\frac{4}{7} \times \frac{4}{7} \times \frac{3}{7}\right) = \frac{144}{343}$
- $P(X = 3) = P(R_1 \cap R_2 \cap R_3) = \left(\frac{4}{7}\right)^3 = \frac{64}{343}$



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# Thank You!