

Quiz #4

Name: ANSWER KEY

Note: the questions are randomly generated so these may (not) exactly match those on your paper. The answers below are for *these* and if you have trouble seeing the connection between these and those, ask me.

1. Suppose X is a discrete random variable with PMF

x	0	1	2	3
$f_X(x)$	0.31	0.32	0.1	0.27

Find the mean, μ .

Solution:

Just multiply the top row by the bottom row and add up the products. The answer is

[1] 1.33

2. Let $X \sim \text{binom}(\text{size} = 65, \text{prob} = 0.52)$. Find $\mathbb{P}(X \leq 30)$.

Solution:

The above would be the sum of the probabilities (given by the PMF) from 0 to 30. An expression for this is

$$\sum_{x=0}^{30} \binom{65}{x} 0.52^x (1 - 0.52)^{65-x}.$$

In R this would be

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> pbinom(x, size = n, prob = p)
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[1] 0.2062585

And that's it.