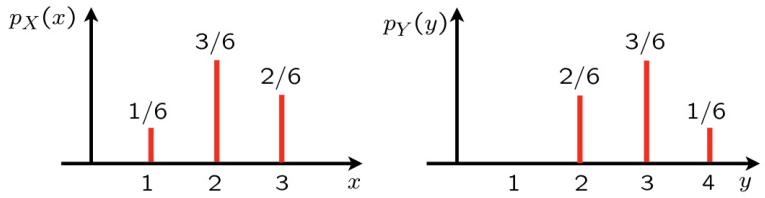
3. Exercise: Linear functions of discrete r.v.'s

Exercise: Linear functions of discrete r.v.'s

2/2 points (graded)

The random variables X and Y obey a linear relation of the form $Y = aX + b$ and have the PMFs shown in the diagram. Find the values of a and b.



$a =$ -1 ✔ **Answer:** -1

$b =$ 5 ✔ **Answer:** 5

Solution:

Because the entries of the PMF of Y appear in the opposite order than the entries of the PMF of X, we know that a has to be negative. Furthermore, the spread of the PMF of Y is the same as the spread of the PMF of X, and therefore, $a = -1$. The random variable $-X$ takes values in the set $\{-3, -2, -1\}$. To obtain the given PMF of Y, we need to shift it (to the right) by $b = 5$.

提交 You have used 3 of 3 attempts

Answers are displayed within the problem

讨论

显示讨论

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