

# Discrete RVs Review Quiz

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1. Have you submitted your R project proposal?
  - The correct answer is “Yes”

# Real Questions

1. What is the expectation of a discrete RV?
  - $E[X] = \sum_{i=1}^n x_i p(x_i)$
2. What is  $E[aY + b^2X]$ ?  $X$  and  $Y$  are not independent.
  - $aE[Y] + b^2E[X]$
3. What is  $\text{Var}(aX + bY)$ ?  $X$  and  $Y$  are not independent.
  - $a^2\text{Var}(X) + b^2\text{Var}(Y) + 2\text{Cov}(X, Y)$
4. Is  $E[Y|X]$  random or constant?
  - Random
5.  $X$  and  $Y$  can only take values 0 or 1. The joint distribution is  $p(0, 0) = 0.2, p(0, 1) = 0.3, p(1, 0) = 0.2, p(1, 1) = 0.2$ . Is this valid?
  - No. The sum over all possible pairs should exactly equal 1.
6. Ready for the next lecture?

## Real Questions

