# Quiz 1

Form A

Math 130B, 5 PM

Please justify all your answers

Please also write your full name on the back

Name _____

March 30, 2022

1. An urn contains $n$ red balls and $m$ blue balls. They are withdrawn one at a time until a total of $r$ red balls have been withdrawn (here $r \leq n$). Find the probability that a total of $k$ balls are withdrawn. *Hint: if $k$ balls are withdrawn in total, what color is the last ball? How many of each color are there in the other $k - 1$ withdrawn balls?*

2. Let $X$ be a continuous random variable having cumulative distribution function $F$. Define the random variable $Y$ by $Y = F(X)$. Show that $Y$ is uniformly distributed over $(0, 1)$. *Hint: what is the cumulative distribution function for $Y$? You can assume that $F$ is invertible.*

# Quiz 1

Form B

Math 130B, 6 PM

Name _____

Please justify all your answers

March 30, 2022

Please also write your full name on the back

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