

STAT310
Practice Problems
Week 8

March 26, 2012

1 Bivariate change of variables.

1. Let X, Y be independent Poisson random variables with parameters θ and λ , respectively. Find the PDF of $U = X + Y$.
2. Let $X \sim \text{Beta}(\alpha, \beta)$ and $Y \sim \text{Beta}(\alpha + \beta, \gamma)$ be independent random variables. Find the PDF of $U = XY$.
3. Let X, Y be independent standard normal random variables. Consider the transformation $U = X/Y$, $V = |Y|$. Find the PDF of $U = X/Y$.