$X \sim \text{Unif}(0,1)$ $Y \sim \text{Unif}(0,1)$ X and Y are independent.

$\Rightarrow f(x,y) =$ _____ _____

$\Rightarrow F_X(a) = F_Y(a) =$ _____ _____

Let $A = \max(X, Y)$. What is the pdf of A?

$F_A(a) =$ _____ def. of the cdf

$=$ _____ def of A

$= P(X \le a \cap Y \le a)$ _____

$=$ _____ independence

$=$ _____

$=$ _____ □

$f_A(a) =$ _____

$=$ _____ □

Extra "credit" generalize to:

* X and Y with any known cdf

* $X_1, X_2, X_3, \ldots, X_n$ indep with known cdf

  $A = \max(X_1, X_2, \ldots, X_n)$