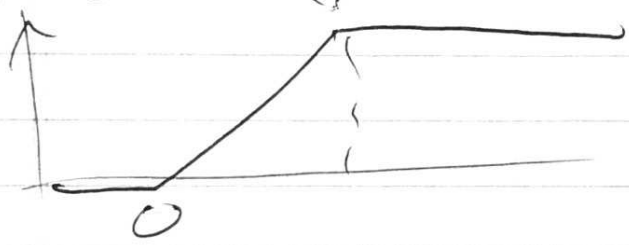
C9 2/13/20-1

TEST INCLUDES THRU CH 3

UNIFORM $0 \to 1$



$$F_U(x) = \begin{cases} 0 & x \le 0 \\ x & 0 \le x \le 1 \\ 1 & 1 \le x \end{cases}$$

eg $E(\frac{1}{4}) = \frac{1}{4}$

$P(X \le \frac{1}{4}) = \frac{1}{4}$

PDF

$X : U[0,1]$

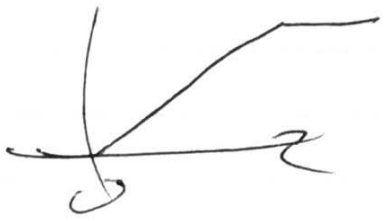
$$f(x) = \begin{cases} 0 & x < 0 \\ 1 & 0 \le x \le 1 \\ 0 & x > 1 \end{cases}$$

$$P(a < x < b) = b - a = \int_a^b f(x)\,dx$$

$0 \le a \le b \le 1$

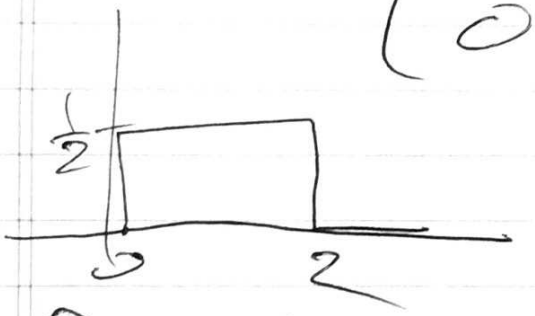
CQ-2

NOW X: $U[0,2]$

CDF 

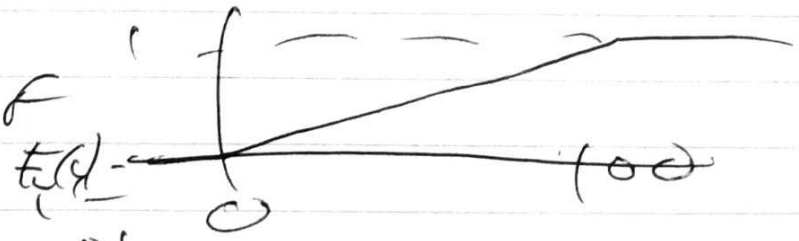
$$F(x) = \begin{cases} 0 & x \le 0 \\ x/2 & 0 \le x \le 2 \\ 1 & 2 \le x \end{cases}$$

PDF
$$f(x) = \begin{cases} 0 & x < 0 \\ \frac{1}{2} & 0 \le x \le 2 \\ 0 & 2 \le x \end{cases}$$



$$F_Y(y) = \frac{y}{100} \quad 0 < 100$$

Y $U[0,100]$ CDF



PDF = $f(y)$

DEFINE $Y = 100X$

$$P[50 \le Y \le 60] = \int_{50}^{60} f_Y(y)\,dy$$

$$\int_{50}^{60} .01\,dy = .1$$

$Y: 50\text{-}60 \equiv X: .5 \to 6$

$$P[.5 \le X \le 6] = \int_{.5}^{6} f_X(x)\,dx$$

$$= \int_{.5}^{6} 1\,dx = .1$$