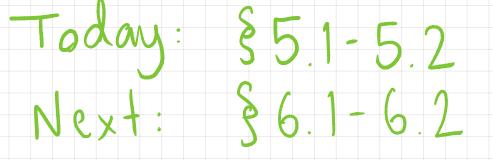
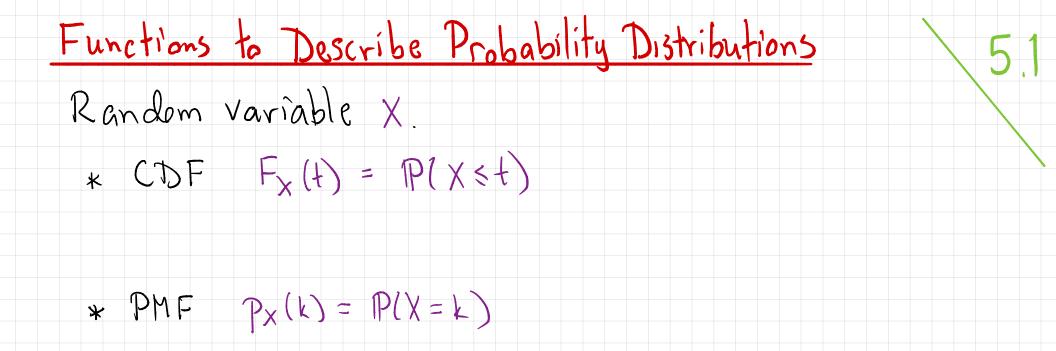
## MATH 180A: INTRO TO PROBABILITY (FOR DATA SCIENCE)

www.math.ucsd.edu/~tkemp/180A



Lab 5 due Wednesday (Nov 13) by 11:59 pm HW 5 due TONIGHT by 11:59 pm L Error in problem statement of Exercise 4.40: the exact probability is = 0.00327556 # 0.000949681



#### \* PDF $f_{x}(t) = \frac{d}{dt} F_{x}(t)$

New entry: MGF

 $M_{\chi}(t) =$ 

Eg. X~ Ber(p)

Eg. N~ Poisson()



## $F_{.g.}$ $T \sim Exp(\lambda)$

À MGF may take some infinite values. There is always at least one finite value:

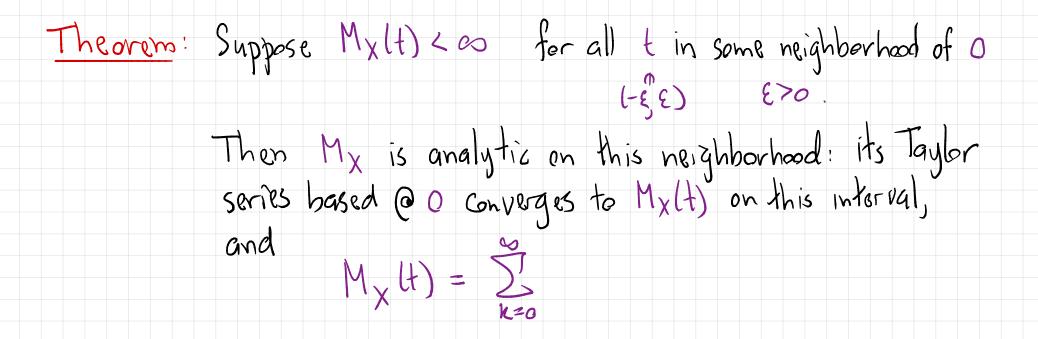
But it can happen that there are no others!

Eq. Cauchy density  $f(x) = \frac{1}{\pi (1+\chi^2)}$ 

# Why MGF?

Griven a random variable X, its moments (should they exist) are the numbers  $F(X^k)$ , k=9,1,2,--

These can be computed from MXH) as follows.



Eq. Find the moments of the Exp() instribution.

#### Eg. Find the moments of the NG,D distribution.