Ch 4.5 Poisson Distribution

It is used to describe arrivals of people in lines, planes in airports, cars pulling into gas stations, number of people getting online, etc.

It is used over a specific period of time.

2nd π scroll

Formula: $P(x) = \dfrac{mean^x \cdot e^{-mean}}{x!}$

$$\dfrac{\mu^x \cdot e^{-\mu}}{x!}$$

x = # occurrences
-it must be random
-independent
-uniformly distributed

e = 2.71828 approx.

*calculator

May 9-8:24 AM

Ex 1a) Average number of school closings is 4 due to snowstorms.

What is the P(6 snow days)
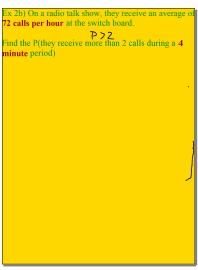
$$P(x) = \dfrac{\mu^x \cdot e^{-\mu}}{x!}$$

May 9-8:32 AM

Ex1b) A baseball club owner knows about 6 games, on average, will be postponed because of rain.

Find the P(3 postponed by rain)

Find P(none will be)

May 9-8:34 AM

Ex 2a)On the first day of a summer clearance sale, the store makes an average rate of $4/minute.

During a 5 min period find the p(the store makes $25 - $27)

May 9-8:35 AM

Ex 2b) On a radio talk show, they receive an average of **72 calls per hour** at the switch board.

$P > 2$

Find the P(they receive more than 2 calls during a **4 minute** period)

May 9-8:37 AM

Ex 3) V-I bombs duirng WWII where divided into 576 regions. Each region covered .25 km^2. The total number of bombs hit were 535.

Find the expected value for the regions that didn't get hit.

May 9-8:39 AM