**Week 5 Assignment**

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5-1)

MU and sigma given from book. Use scipy.stats.norm for distribution, loc=mu and scale=sigma

## From book - men u = 178, sigma = 7.7  
mu = 178  
sigma = 7.7  
dist = scipy.stats.norm(loc=mu, scale=sigma)

Mean and standard deviation built into data type

dist.mean(), dist.std()

(178.0, 7.7)

CDF function also built in

dist.cdf(mu-sigma)

0.1586552539314574

Use CDF to find percentage under 6’ 1” minus the percentage under 5’ 10”

low = dist.cdf(177.8) # 5'10"  
high = dist.cdf(185.4) # 6'1"  
high-low

0.3420946829459531

5-2)

Xm and alpha given in exercise. Pareto built in function for scipy.stats with function median()

a = 1.7  
xm = 1  
dist = scipy.stats.pareto(b=a, scale=xm)  
dist.median()

1.5034066538560549

Mean also a built in function for scipy.stats.pareto

dist.mean()

2.428571428571429

CDF built in function, check CDF under mean

dist.cdf(dist.mean())

0.778739697565288

Use built in function .ppf to find the tallest person (600 km?!?)

dist.ppf(1 - 1/7e9)

618349.6106759505