MATH 324 Homework 3

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Exercise 1:

A:

```
p1=qnorm(.75, 520, 80)
p1
```

```
## [1] 573.9592
```

Yes he will be admitted since 595 > 573.9592

B:

```
p2=1 - pnorm(600, 520, 80)
p2
```

```
## [1] 0.1586553
```

Exercise 2:

A:

X is number of years computer part lasts

P(X > 8)

```
L=1/7
L
```

```
## [1] 0.1428571
```

```
exp(-L*8)
```

```
## [1] 0.3189066
```

B:

80% of parts last how long?

e^((-1/7)*T) = .8

```
T=(log(.8)/(-1/7))
T
```

```
## [1] 1.562005
```

T = 1.562 years

About 1 year 6 months 2 weeks

Exercise 3:

A:

```
laser1=rexp(1000,1/80)
laser2=rexp(1000,1/80)
```

B:

```
combined_laser=laser1+laser2
greater_than_100_hours=length(which(combined_laser > 100))
greater_than_100_hours/1000
```

```
## [1] 0.648
```

C:

```
greater_than_50_hours=length(which(laser1 > 50 & laser2 > 50))
greater_than_50_hours/1000
```

```
## [1] 0.294
```

Exercise 4:

mean: 1300 lbs

stdev: 150 lbs

randomly measure 50 cows

A:

```
sd1=150/sqrt(50)
p1=pnorm(1320,1300,sd1,lower.tail=FALSE)
p1
```

```
## [1] 0.1728893
```

B:

```
p2=pnorm(1350,1300,sd1)-pnorm(1250,1300,sd1)
p2
```

```
## [1] 0.9815779
```