Problem 1

1.1ai)

```
pbinom(10, size=13, prob=1/6)-pbinom(4, size=13, prob=1/6)
```

```
## [1] 0.05115455
```

1.1aii)

```
pbinom(6, size=13, prob=1/6)-pbinom(2, size=13, prob=1/6)
```

```
## [1] 0.3695248
```

1.1aiii)

```
pbinom(10, size=13, prob=1/6)
```

```
## [1] 0.9999998
```

1.1aiv)

```
pbinom(8, size=13, prob=1/6, lower.tail=FALSE)
```

```
## [1] 3.710683e-05
```

1.1b)

```
plot(pbinom(1:13, 13, 1/6), xlab="Number of Fives", ylab="Probability")
```


Probability
0.4
0.7
1.0
2
4
6
8
12
Number of Fives

Problem 2

2.1a)

```
pnorm(95, mean=73, sd=8)-pnorm(60, mean=73, sd=8)
```

```
## [1] 0.944939
```

2.1b)

```
qnorm(.99, mean=73, sd=8)
```

```
## [1] 91.61078
```

2.1c)

```
qnorm(.95, mean=73, sd=8)
```

```
## [1] 86.15883
```

2.2a)

```
pnorm(2.54, lower.tail=FALSE)
```

```
## [1] 0.005542623
```

2.2b)

```
pnorm(.72)-pnorm(0)
```

```
## [1] 0.2642375
```

2.2c)

```
pnorm(1.25, lower.tail=FALSE)+pnorm(-1.25, lower.tail=TRUE)
```

```
## [1] 0.2112995
```

2.3a)

Because the sample size is rather small, this variable follows a T distribution.

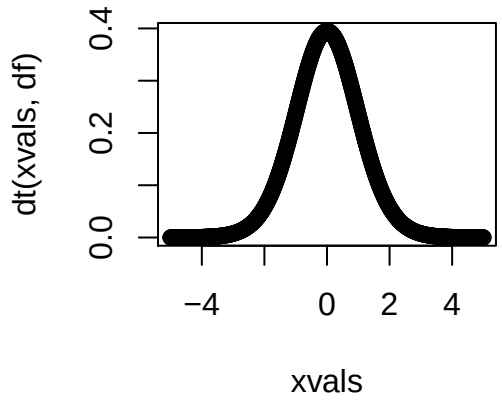
2.3b)

```
n = 24
df = n-1
t = (42 - 32)/(44 / sqrt(24))
pt(t, df, lower.tail=FALSE)

## [1] 0.138518
```

2.3c)

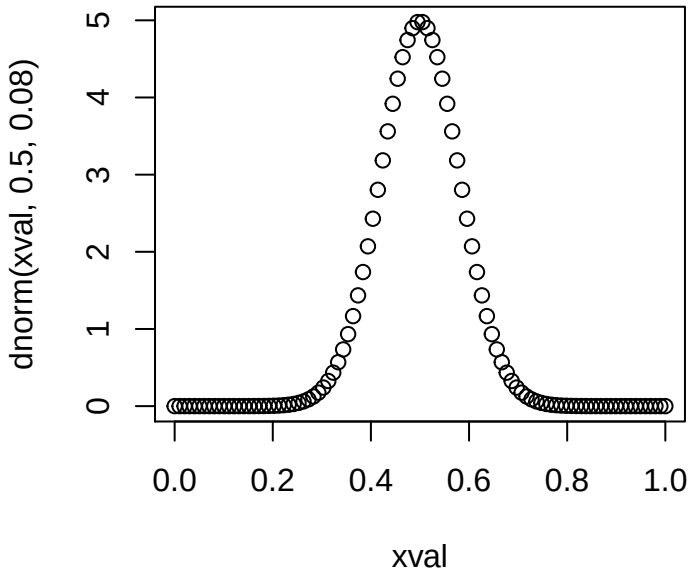
```
xvals = seq(-5, 5, length.out = 800)
plot(xvals, dt(xvals, df))
```



Problem 3

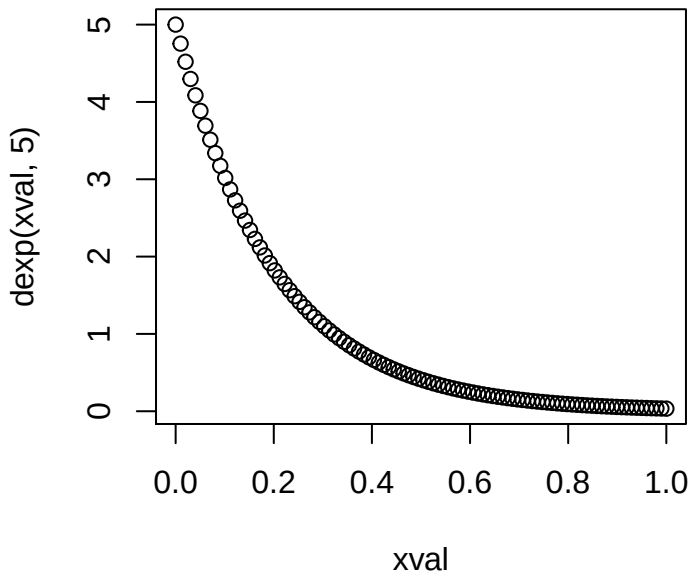
3.3a)

```
xval = seq(0, 1, length=100)
plot(xval, dnorm(xval, .5, .08))
```



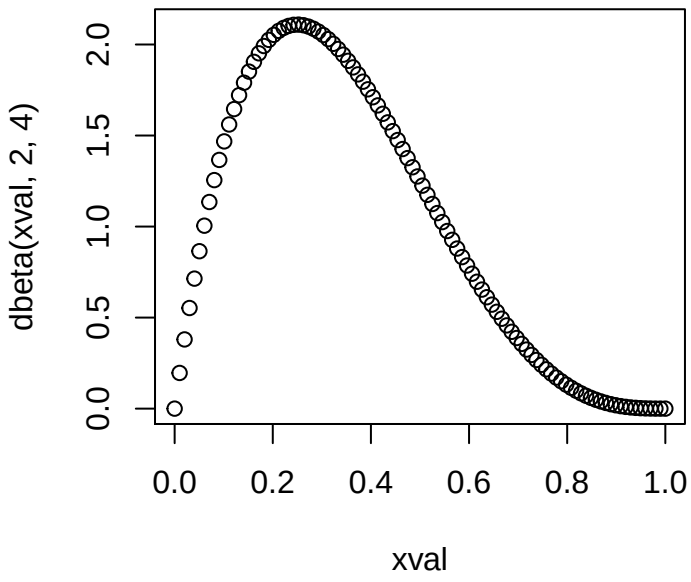
3.3b)

```
xval = seq(0, 1, length=100)
plot(xval, dexp(xval, 5))
```



3.3c)

```
xval = seq(0, 1, length=100)
plot(xval, dbeta(xval, 2,4))
```



3.3d)

```
xval = seq(0, 1.5, length=100)
plot(xval, dgamma(xval, 2,5))
```