STA2023 Practice 06 Answer

1.

```
> require(MASS)
Loading required package: MASS
> punif(5,0,8, lower.tail = F)
[1] 0.375
```

2.
```
> punif(3.3,0,8, lower.tail = F)
[1] 0.5875
```

3.
```
> punif(3,0,8, lower.tail = T)
[1] 0.375
```

4.
```
> punif(1,0,8, lower.tail = F)
[1] 0.875
```

5.
```
> punif(1.4,0,8, lower.tail = F)
[1] 0.825
```

6.
```
> punif(5,0,8, lower.tail = T)
[1] 0.625
```

7.
```
> punif(10,6,12, lower.tail = F)
[1] 0.3333333
> fractions(0.3333333)
[1] 1/3
```

8.
```
> punif(10,6,12)-punif(7,6,12)
[1] 0.5
```

9.
```
> pnorm(1.13)
[1] 0.8707619
```

10.
```
> pnorm(0.59, lower.tail = F)
[1] 0.2775953
> round(0.2775953, digits=4)
[1] 0.2776
```

11.
```
> pnorm(0.92)-pnorm(-0.92)
[1] 0.6424272
```

12.
```
> qnorm(0.9599)
[1] 1.749527
```

```
13.
> qnorm(0.0694, lower.tail = F)
[1] 1.480275

OR

> qnorm(1-0.0694)
[1] 1.480275

14.
> pnorm(3.01)-pnorm(0)
[1] 0.4986938


15.
> pnorm(0)-pnorm(-2.41)
[1] 0.4920237

16.
> pnorm(1.13)
[1] 0.8707619

17.
> qnorm(0.005)
[1] -2.575829
> qnorm(1-0.005) # to obtain the right tail critical value.
[1] 2.575829


18.
> pnorm(120,100,15)-pnorm(90,100,15)
[1] 0.6562962

19.
> qnorm(0.10, 100,15)
[1] 80.77673

20.
> qnorm(0.16, 100,15, lower.tail = F)
[1] 114.9169
> qnorm(1-0.16, 100,15) # alternative
[1] 114.9169


21.
> qnorm(.45,1050,218)
[1] 1022.606

22.
> qnorm(.81,68.9,11.6)
[1] 79.0836

23.
> qnorm(.60,200,50)
[1] 212.6674
```

```
24.
> pnorm(53,60,4)
[1] 0.04005916

25.
> pnorm(15.2,15.2,0.9)
[1] 0.5

26.
> pnorm(16.1,15.2,0.9)
[1] 0.8413447


27.
> pnorm(0.32,0.30,0.01, lower.tail = F)
[1] 0.02275013
> .02275013*100
[1] 2.275013

28.
> pnorm(900,1100,150)
[1] 0.09121122
> 0.09121122*100
[1] 9.121122

29.
> pnorm(32,32.3,1.2)
[1] 0.4012937

30.
> pnorm(91.8,89,14/sqrt(49), lower.tail = F)
[1] 0.08075666

31.
> pnorm(87.8,85,14/sqrt(49), lower.tail = T)
[1] 0.9192433
> pnorm(87.8,85,14/sqrt(49)) # lower.tail is TRUE by default.
[1] 0.9192433

32
> pnorm(21.6,18,12/sqrt(16))-pnorm(15.6,18,12/sqrt(16))
[1] 0.6730749
```