7a). Given n = 55, Mean of the sample = 11.0 g/100ml ; std. deviation = 2.1 g/100ml and mean of the population = 10.2 g/100ml

- H0 mean = 10.2 g/100ml
  Ha mean <> 10.2 g/100ml

Code :- library (visualize)

zvalue = (11 - 10.2) / (2.1 / sqrt(55))

zvalue

pnorm (zvalue)

dnorm (zvalue)

pnorm (2.825218) - pnorm (-2.825218)

qnorm (0.05)

Visualize.norm (stat = zvalue, mu = 0, sd = 1, section = "upper")

7b) # Example bottles are being produced with mean 151.8 and sd = 2. Sample of 100 bottles show the mean of 152. Check if the mean has increased

$H_0 = 150$
$H_A > 150$

```
library(visualize)
zvalue = (152 - 151.8) / (2/sqrt(100))
zvalue
qnorm(0.95)
qnorm(0.05)
```

```
visualize.norm(stat = zvalue, mu = 0, sd = 1, section = "upper")
```