

10 Questions on the normal distribution

1) You discover that the happiness of daughters has a mean of 8 and a standard deviation of 4.1,
find the proportion of the happiness between 10.8 and 14.2

```
pnorm(14.2,8,4.1) - pnorm(10.8,8,4.1)  
[1] 0.1820844  
Answer: 0.1821
```

2) Suppose the work of bus riders has a mean of 36 and a standard deviation of 5.8, find values that bracket the middle 12.33 percent of the work.

```
c(qnorm((1-0.1233)/2,36,5.8),qnorm(1-(1-0.1233)/2,36,5.8))
```

```
[1] 35.10011 36.89989
```

Answer: between 35.10 and 36.90

3) Suppose the weight of colors has a mean of 76 and a standard deviation of 4.7, find value for which 37.48 percent of the weight fall below.

```
qnorm(0.3748,76,4.7)
```

```
[1] 74.49992
```

```
Answer: 74.50
```

4) Suppose the IQ of economists has a mean of 46 and a standard deviation of 6, find the proportion of the IQ between 38.6 and 45.7

```
pnorm(45.7,46,6) - pnorm(38.6,46,6)  
[1] 0.3713355  
Answer: 0.3713
```

5) A Google search shows that the warmth of brothers has a mean of 93 and a standard deviation of 3,

find the proportion of the warmth above 98.7

Given $\mu_x = 93$ and $\sigma_x = 3$, Find $Pr(x < 98.7)$

```
1-pnorm(1.9,93,3)
```

```
[1] 1
```

```
Answer: 0.0287
```

6) If you know that the gravity of personalities has a mean of 39 and a standard deviation of 4.6, find the proportion of the gravity below 34.8 and above 51.7

```
pnorm(34.8,39,4.6) + (1- pnorm(51.7,39,4.6))
```

```
[1] 0.1834922
```

Answer: 0.1835

7) A Google search shows that the culture of underwear has a mean of 59 and a standard deviation of 5, find the proportion of the culture below 64.8

```
pnorm(64.8,59,5)
```

```
[1] 0.8769756
```

```
Answer: 0.8770
```

8) A Google search shows that the progress of ice dancers has a mean of 31 and a standard deviation of 2.2, find value for which 42.79 percent of the progress fall below.

```
qnorm(0.4279, 31, 2.2)
```

```
[1] 30.60021
```

```
Answer: 30.60
```


9) A friend tells you that the peace of baby names has a mean of 33 and a standard deviation of 6.4, find the value for which 69.69 percent of the peace falls above.

```
qnorm(1-0.6969,33,6.4)
```

```
[1] 29.70077
```

```
Answer: 29.70
```

10) If you know that the gravity of students has a mean of 9 and a standard deviation of 4, find the proportion of the gravity below 0.5

```
pnorm(0.5,9,4)  
[1] 0.01679331  
Answer: 0.0168
```