

Example_SAT_scores

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```
[1]: import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from scipy.stats import norm
```

Example 3.5 of the textbook

```
[2]: norm.cdf(980, loc = 1059, scale = 210) ## this gives the proportion below 980
```

```
[2]: 0.35338764759507846
```

```
[3]: 1 - norm.cdf(980, loc = 1059, scale = 210) ## this gives the desired proportion
      ↪ of students above 980
```

```
[3]: 0.6466123524049215
```

```
[4]: z = (980-1059)/210
z
```

```
[4]: -0.3761904761904762
```

```
[5]: norm.cdf(z)
```

```
[5]: 0.35338764759507846
```

```
[6]: 1 - norm.cdf(z)
```

```
[6]: 0.6466123524049215
```

Example 3.9 of the textbook

Now we want to find the SAT score with area 0.1 to its right under the Normal curve with mean 531 and standard deviation 104.

```
[1]: from scipy.stats import norm
```

```
[2]: # this gives you the value x corresponding to a proportion of 0.9 to its left
      ↪ (lower tail)
```

```
# which also corresponds to a proportion of 0.1 to its right  
norm.ppf(0.9,loc=531,scale=104)
```

```
[2]: 664.2813628166384
```

```
[9]: #help(norm.ppf)
```

```
[ ]:
```