

1. If Z is norm (mean = 0, sd = 1)

find $P(Z > 2.64)$

find $P(|Z| > 1.39)$

```
> pnorm(2.64, lower.tail = FALSE)
```

```
[1] 0.004145301
```

```
>
```

```
> 2 * pnorm(-1.39)
```

```
[1] 0.1645289
```

2. Suppose p = the proportion of students who are admitted to the graduate school of the University of California at Berkeley, and suppose that a public relation officer boasts that UCB has historically had a 40% acceptance rate for its graduate school. Consider the data stored in the table UCBA admissions from 1973. Assuming these observations constituted a simple random sample, are they consistent with the officer's claim, or do they provide evidence that the acceptance rate was significantly less than 40%?

Use an $\hat{\alpha} = 0.01$ significance level.

```
> -qnorm(0.99)
```

```
[1] -2.326348
```

```
> A <- as.data.frame(UCBA admissions)
```

```
> head(A)
```

	Admit	Gender	Dept	Freq
1	Admitted	Male	A	512
2	Rejected	Male	A	313
3	Admitted	Female	A	89
4	Rejected	Female	A	19
5	Admitted	Male	B	353
6	Rejected	Male	B	207

Our test statistic is not less than -2.32 , so it does not fall into the critical region. Therefore, we fail to reject the null hypothesis that the true proportion of students admitted to graduate school is less than 40% and say that the observed data are consistent with the officer's claim at the $\alpha = 0.01$ significance level.