

# Standard Normal Distribution

*Meng Cao*

*2/16/2018*

## Example pnorm

1. Find  $P(Z \leq 1.37)$
2. Find  $P(Z \geq -0.82)$
3. Find  $P(-0.4 \leq Z \leq 0.3)$

Solution:

```
pnorm(1.37)
```

```
## [1] 0.9146565
```

```
1 - pnorm(-0.82)
```

```
## [1] 0.7938919
```

```
pnorm(0.3) - pnorm(-0.4)
```

```
## [1] 0.2733332
```

## Example find percentile

1. Find  $c$  such that  $P(Z \leq c) = 0.14$ .
2. Find the 88th percentile of  $Z$ .
3. Find the middle 92% of  $Z$ . Find  $c$  such that  $P(-c \leq Z \leq c) = 0.92$ .

Solution:

```
qnorm(0.14)
```

```
## [1] -1.080319
```

```
qnorm(0.88)
```

```
## [1] 1.174987
```

```
qnorm((1 - 0.92)/2)
```

```
## [1] -1.750686
```