

Possible Test Question:  
produce a random  
int value between  
0 and 13, inclusive.

```
double r = Math.random();  
int value = (int)(r * 14);
```

Possible Test Question:  
produce a random  
int value between  
12 and 30, inclusive.

note: `Math.random()` returns a  
double, `r`, such that  
 $0.0 \leq r < 1.0$

(a) `double r = Math.random();`  
`int value = (int)`  
`$(r * 12 + 18)$ );`  
`r = 0: value = 18`  
`r = .5: value = 24`  
`r = .9999: value = 29`

(b) `double r = Math.random();`  
`int value = (int) (12 + (r * 31));`  
`r = 0.0    value = 12`  
`r = 0.5    value = 27`  
`r = 0.999    value = 42`

```
(c) double r = Math.random();
    int value = (int)
        (r + 12) * 19);
```

$r = 0$      $value = 12 \cdot 19$

$r = .5$      $value = \text{big.}$

```
(d) double r = Math.random();
    int value =
        12 + (int)(r * 19);
```

$r = 0.0$      $value = 12$

$r = 0.5$      $value = 21$

$r = 0.999$      $value = 30$

$$19 = (30 - 12) + 1$$

max    min

Possible Test Question:

produce a random  
int value between

min and max, inclusive,

where min and max

are int and  $\text{min} < \text{max}$

assume declarations:

```
int min = ___;
```

```
int max = ___;
```

```
// min < max
```

```
double r = Math.random();
```

```
int value =
```

```
min + (int)(r * (max - min + 1));
```

```
double r = Math.random();
```

```
int num = max - min + 1;
```

```
int value = min + (int)(r * num);
```

Strings : String s;  
// s is initialized

- (a) write a statement that will retrieve the number of characters in S