

## A Program to Calculate the Line Equation and Points Between Two Points

Write a program in R that receives the coordinates of two points  $(x_1, y_1)$  and  $(x_2, y_2)$  from the user and performs the following tasks:

1. Calculate and print the formula of the line passing through these two points in the form  $y = mx + b$ .
2. Print the coordinates of 10 equally spaced points on this line between the two points.

### Description

- The slope of the line ( $m$ ) is calculated using the following formula:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

- The y-intercept ( $b$ ) is calculated using the following formula:

$$b = y_1 - m \cdot x_1$$

### Input

The coordinates  $(x_1, y_1)$  and  $(x_2, y_2)$  will be received from the user.

### Output

- Print the formula of the line in the form  $y = mx + b$ .
- Print the coordinates of 10 points on the line.

### Example

#### Input 1:

```
x1 = 2
y1 = 2
x2 = 8
y2 = 10
```

#### Output 1:

```
y = 0.6667x + 1.6667
10 points on the line between the two points:
Point 1 : ( 2 , 2 )
Point 2 : ( 2.666667 , 2.888889 )
Point 3 : ( 3.333333 , 3.777778 )
Point 4 : ( 4 , 4.666667 )
```

Point 5 : ( 4.666667 , 5.555556 )  
Point 6 : ( 5.333333 , 6.444444 )  
Point 7 : ( 6 , 7.333333 )  
Point 8 : ( 6.666667 , 8.222222 )  
Point 9 : ( 7.333333 , 9.111111 )  
Point 10 : ( 8 , 10 )

## Notes

1. Commenting (providing brief explanations of the code) will be considered as part of the evaluation.