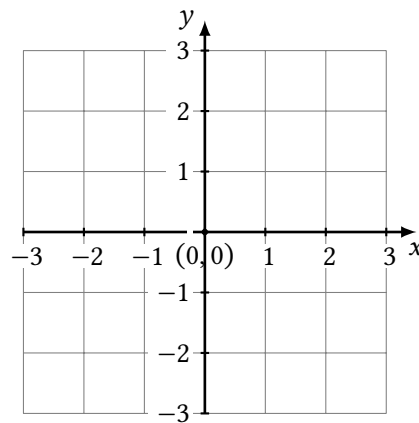


# PROBLEM 3: SLOPE

For this exercise you must write a program that calculates the slope of a line with the two endpoints you are given.

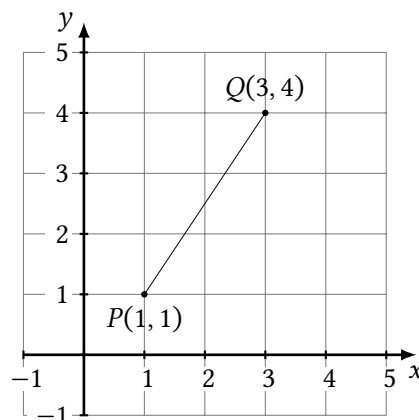
In a Cartesian coordinate system, any point on a plane can be specified by a pair of numeric coordinates. By convention, the first coordinate represents the horizontal distance to the right (signified by a positive value) or to the left (signified by a negative value) of the origin. Similarly, the second coordinate represents the vertical distance above (positive) or below (negative) the origin. The central horizontal line is referred to as the  $x$ -axis and the horizontal distance of a point is represented by the letter  $x$ . Likewise, the central vertical line is referred to as the  $y$ -axis and the vertical distance of a point is represented by the letter  $y$ . The point where the  $x$ -axis and  $y$ -axis cross is called the *origin* and has the coordinates  $(0, 0)$ .



Given a point  $P$  with coordinates  $(x_1, y_1)$  and a point  $Q$  with coordinates  $(x_2, y_2)$ , the slope of the line connecting  $P$  and  $Q$ —denoted as  $m(P, Q)$ —can be calculated with the following formula:

$$m(P, Q) = \frac{y_2 - y_1}{x_2 - x_1} \quad (1)$$

For example, if  $P = (1, 1)$  and  $Q = (3, 4)$ , then the slope  $m(P, Q)$  can be calculated as follows:



$$\begin{aligned}m(P, Q) &= \frac{y_2 - y_1}{x_2 - x_1} \\&= \frac{4 - 1}{3 - 1} \\&= \frac{3}{2} \\&= 1.5\end{aligned}\tag{2}$$

Your program will receive input as soon as it launches. The first input will consist of two numbers, separated by a comma, followed by the enter key; these are the coordinates of the first point. The second input will also consist of two numbers, separated by a comma, followed by the enter key; these are the coordinates of the second point. Your program must then output the slope of a line between those two points, rounded to the nearest tenth (one place after the decimal). If there is an error during the calculation, your program must output the message, “Unable to calculate slope.”

You may safely assume that each number your program is given will be a valid floating point or integer number, 32 bits or less.

*Your program’s output must match the examples given below **exactly**. Your program must not prompt for input. Note carefully the spelling, capitalization, punctuation, and spacing of the output. The input that will be given to your program is highlighted in **red**.*

### EXAMPLE RUN 1

```
3,4  
5,9  
2.5
```

### EXAMPLE RUN 2

```
-3,4  
1.234,6.789  
0.7
```

### EXAMPLE RUN 3

```
1,1  
1,9  
Unable to calculate slope.
```