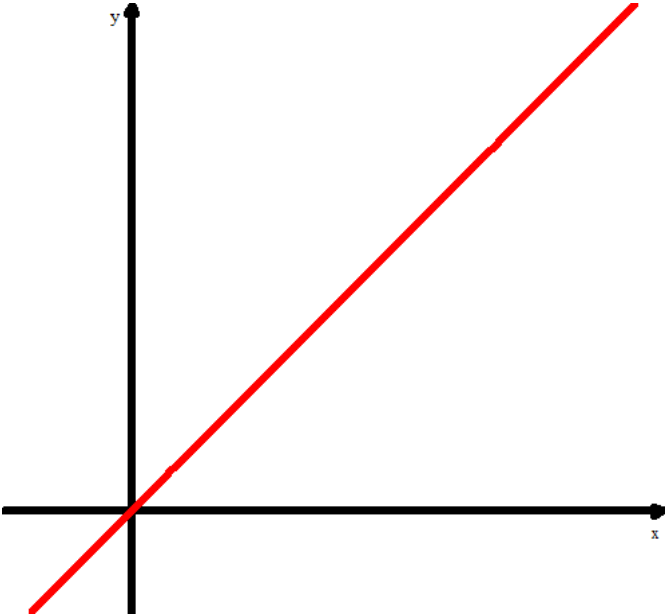


### Opening Investigation → Slope of Lines & Tangent Ratios

**A. PURPOSE →** what relationship exists between the slope of a line and the angle the line forms with the x-axis?

**B. Investigation #1**

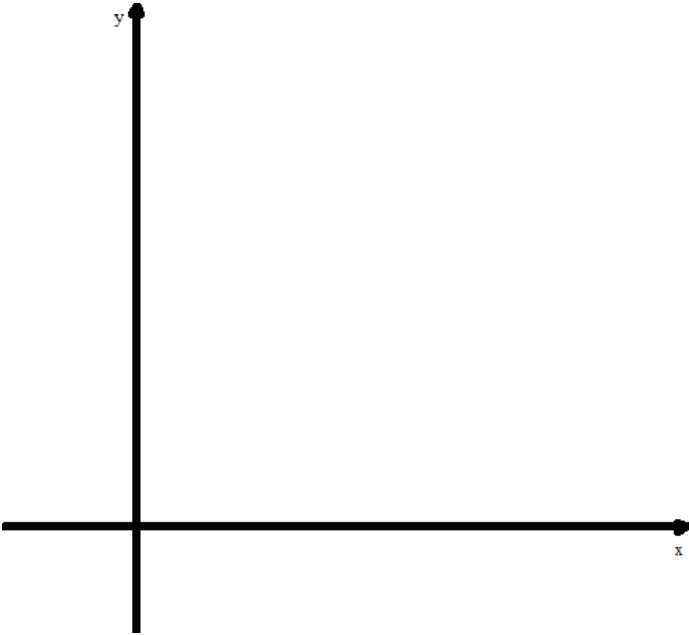
- a. Open the GSP document → PORTFOLIO 5 TANGENT RATIO INVESTIGATION
  
- b. We need to take a few initial measurements before we begin and set up our data sheet:
  - i. Measure the co-ordinates of point C → try to get as close to (4,4) as you can
  - ii. Measure the length of segment BC
  - iii. Measure the length of segment BA
  - iv. Calculate the slope of the line AC
  - v. Measure the angle CAB
  
- c. Recording Observations

<p>Sketch</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Coordinates of point C</td> <td style="text-align: center; padding: 5px;">(4,4)</td> </tr> <tr> <td style="padding: 5px;">Length BC =</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Length BA =</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Slope of line =</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px;">Angle CAB =</td> <td style="padding: 5px;"></td> </tr> </table> <div style="background-color: yellow; padding: 10px;"> <p>Slope = _____ .    Angle = _____ .</p> </div>	Coordinates of point C	(4,4)	Length BC =		Length BA =		Slope of line =		Angle CAB =	
Coordinates of point C	(4,4)										
Length BC =											
Length BA =											
Slope of line =											
Angle CAB =											

# Investigation: Slope of Lines & Tangent Ratios Lesson 34

d. Now we will try 4 more sets of measurements

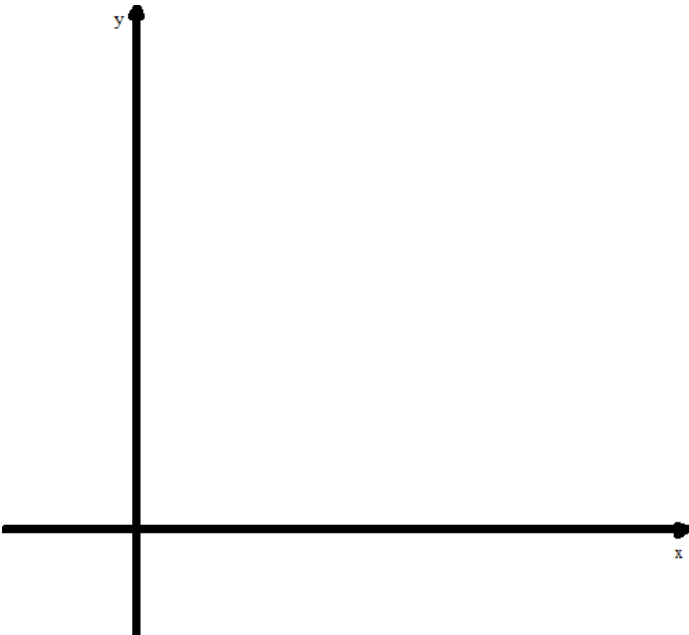
Sketch



Coordinates of point C	
Length BC =	
Length BA =	
Slope of line =	
Angle CAB =	

Slope = \_\_\_\_\_ . Angle = \_\_\_\_\_ .

Sketch



Coordinates of point C	
Length BC =	
Length BA =	
Slope of line =	
Angle CAB =	

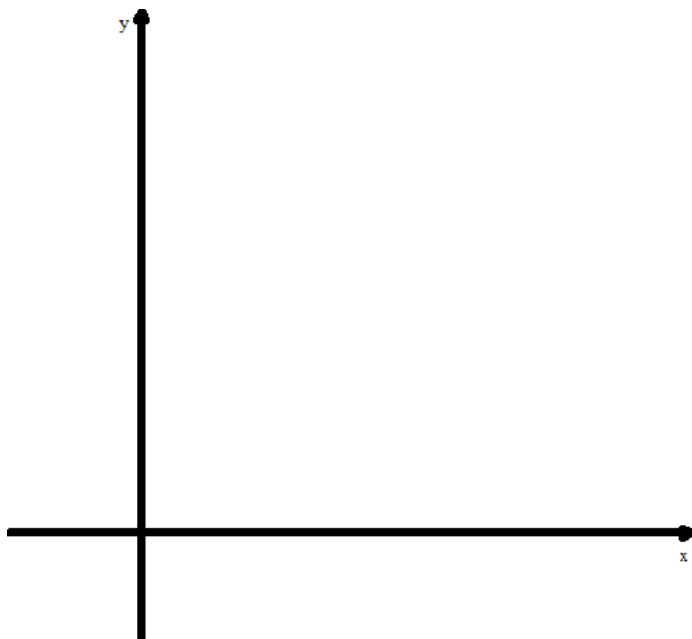
Slope = \_\_\_\_\_ . Angle = \_\_\_\_\_ .

# Investigation: Slope of Lines & Tangent Ratios

## Lesson 34

d. Now we will try 4 more sets of measurements

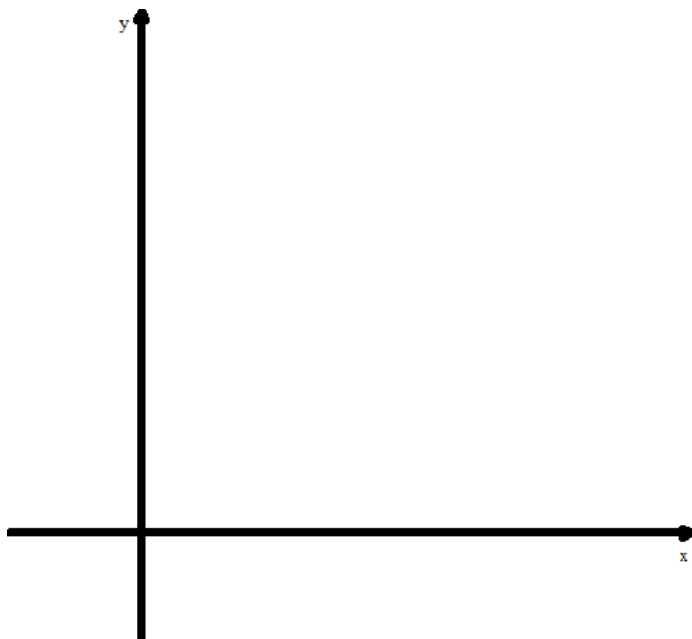
Sketch



Coordinates of point C	
Length BC =	
Length BA =	
Slope of line =	
Angle CAB =	

Slope = \_\_\_\_\_ . Angle = \_\_\_\_\_ .

Sketch



Coordinates of point C	
Length BC =	
Length BA =	
Slope of line =	
Angle CAB =	

Slope = \_\_\_\_\_ . Angle = \_\_\_\_\_ .

C. SUMMARY →

### D. Introducing the Tangent Ratio

- a. KEY SUMMARY POINT from last 2 pages →
  
- b. Complete the following table as we summarize our findings from the 5 lines we graphed:

$\tan(\text{angle}) =$	$\tan^{-1}(\text{slope ratio}) =$

- c. Conclusion from the data table and the investigation (How is the slope of a line related to the angle the line makes with the x-axis)

### E. Working with Triangles

