

### Exploration: Similar Triangles on a Line

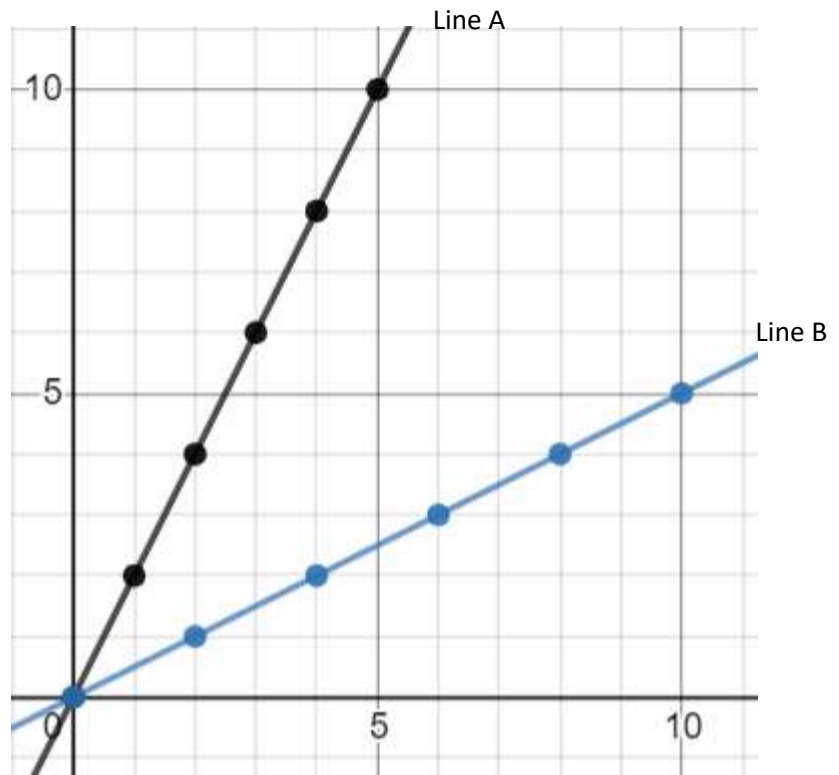
1. a. Pick two points on line A.  
b. Draw a right triangle so that the distance between the two points you chose is the hypotenuse.  
c. Write the ratio of the length of the vertical leg of your right triangle to the length of the horizontal leg.

$$\frac{\text{vertical}}{\text{horizontal}} =$$

- d. Repeat this process two more times with different points (try to get different sized triangles). What do you notice?

$$\frac{\text{vertical}}{\text{horizontal}} =$$

$$\frac{\text{vertical}}{\text{horizontal}} =$$



2. a. Pick two points on line B.  
b. Draw a right triangle so that the distance between the two points you chose is the hypotenuse.  
c. Write the ratio of the length of the vertical leg of your right triangle to the length of the horizontal leg.

$$\frac{\text{vertical}}{\text{horizontal}} =$$

- d. Repeat this process two more times with different points (try to get different sized triangles). What do you notice?

$$\frac{\text{vertical}}{\text{horizontal}} =$$

$$\frac{\text{vertical}}{\text{horizontal}} =$$

3. Which line is steeper, Line A or Line B? How does this relate to the ratios you found?

4. a. Pick two points on line C.

b. Draw a right triangle so that the distance between the two points you chose is the hypotenuse.

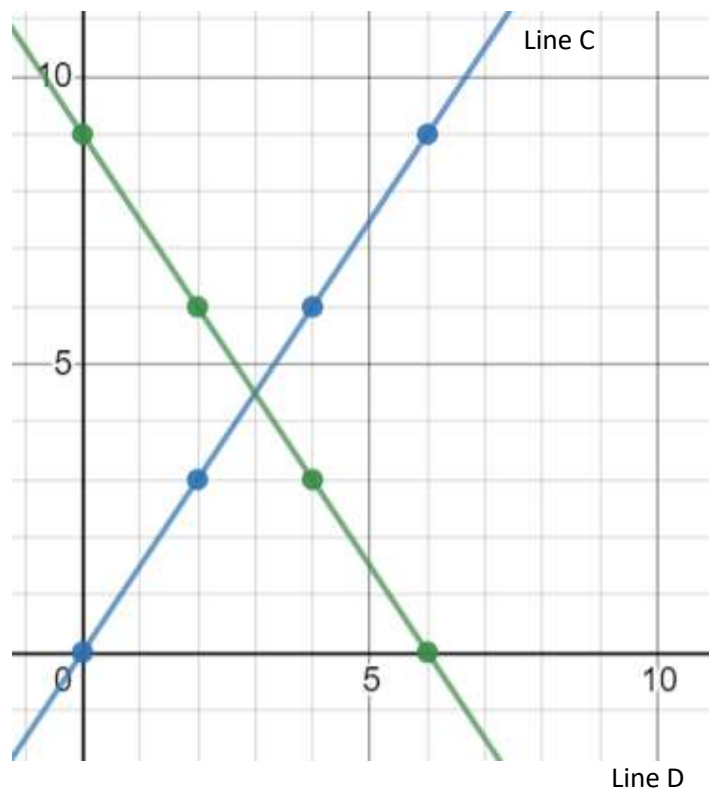
c. Write the ratio of the length of the vertical leg of your right triangle to the length of the horizontal leg.

$$\frac{\text{vertical}}{\text{horizontal}} =$$

d. Repeat this process two more times with different points (try to get different sized triangles). What do you notice?

$$\frac{\text{vertical}}{\text{horizontal}} =$$

$$\frac{\text{vertical}}{\text{horizontal}} =$$



5. a. Pick two points on line D.

b. Draw a right triangle so that the distance between the two points you chose is the hypotenuse.

c. Write the ratio of the length of the vertical leg of your right triangle to the length of the horizontal leg.

$$\frac{\text{vertical}}{\text{horizontal}} =$$

d. Repeat this process two more times with different points (try to get different sized triangles). What do you notice?

$$\frac{\text{vertical}}{\text{horizontal}} =$$

$$\frac{\text{vertical}}{\text{horizontal}} =$$

6. Which line is steeper, Line C or Line D? How does this relate to the ratios you found?

7. How do you think we can indicate that the direction of Lines C and D are different?