

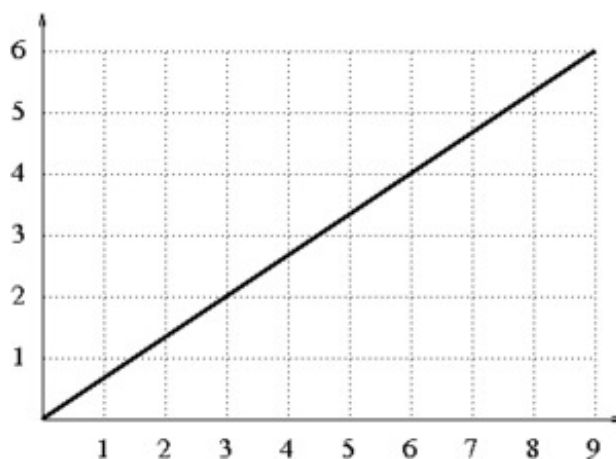
8.EE Slopes Between Points on a Line

Task

The slope between two points is calculated by finding the change in y -values and dividing by the change in x -values. For example, the slope between the points $(7, -15)$ and $(-8, 22)$ can be computed as follows:

- The difference in the y -values is $-15 - 22 = -37$.
- The difference in the x -values is $7 - (-8) = 15$.
- Dividing these two differences, we find that the slope is $-\frac{37}{15}$.

Eva, Carl, and Maria are computing the slope between pairs of points on the line shown below.



Eva finds the slope between the points $(0,0)$ and $(3,2)$. Carl finds the slope between the points $(3,2)$ and $(6,4)$. Maria finds the slope between the points $(3,2)$ and $(9,6)$. They have each drawn a triangle to help with their calculations (shown below).



i. Which student has drawn which triangle? Finish the slope calculation for each student. How can the differences in the x - and y -values be interpreted geometrically in the pictures they have drawn?

ii. Consider any two points (x_1, y_1) and (x_2, y_2) on the line shown above. Draw a triangle like the triangles drawn by Eva, Carl, and Maria. What is the slope between these two points? Why should this slope be the same as the slopes calculated by the three students?



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