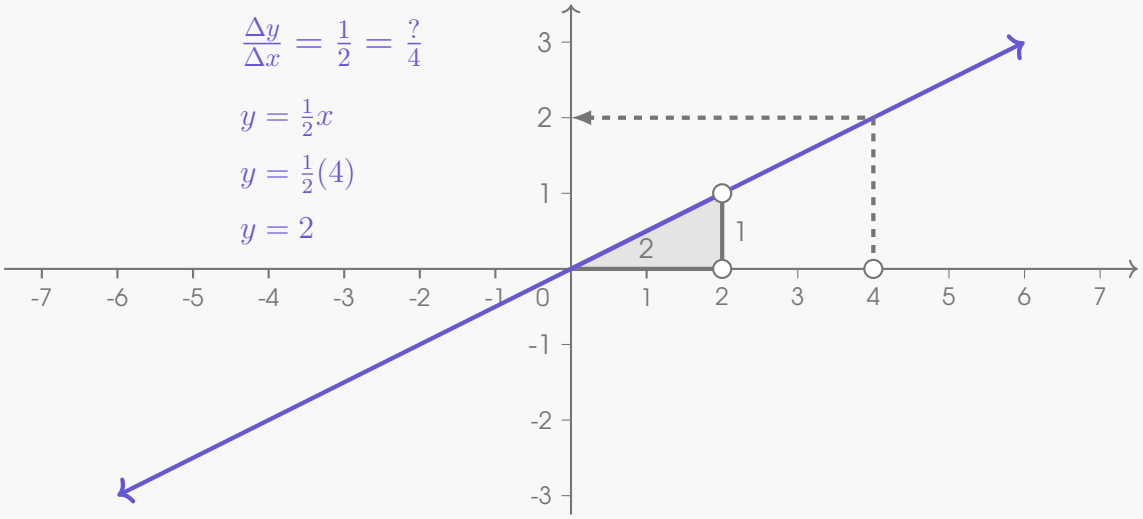
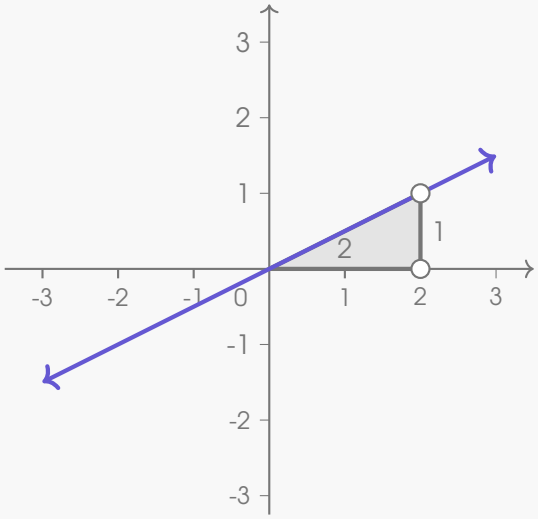
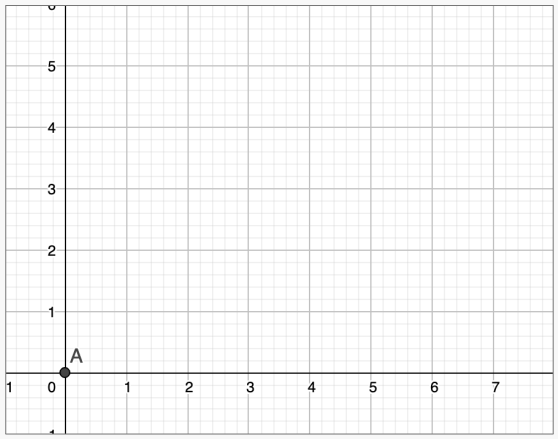
Objective: To create an applet that provides a graphical interpretation of proportions.



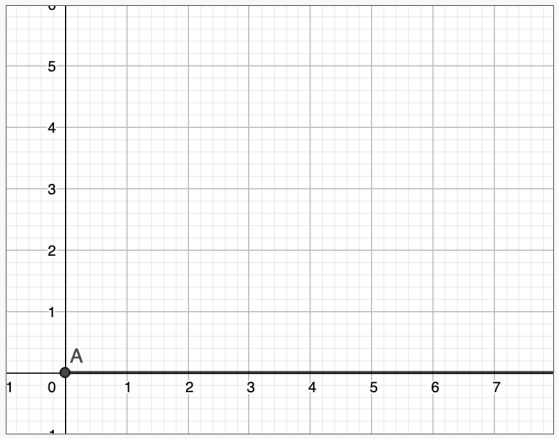
Mini-Objective 1: To create a line where the y-intercept is 0 and the slope is user-defined.



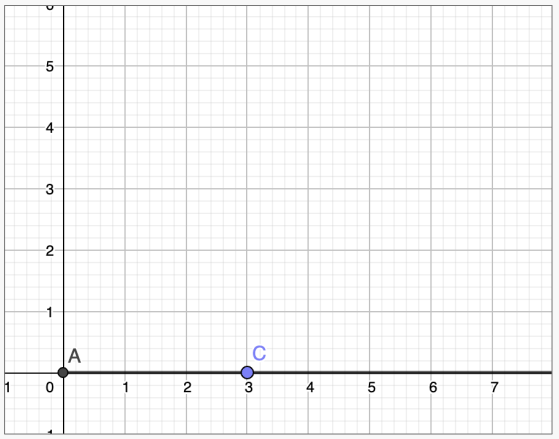
Step 1: Select the Intersection tool and then select the x-axis and y-axis to create a fixed point at the origin.



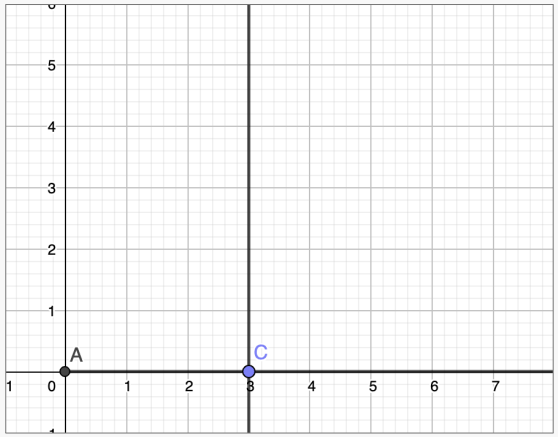
Step 2: Select the Ray tool. Select point A and then select a coordinate on the positive x-axis. Hide point B.



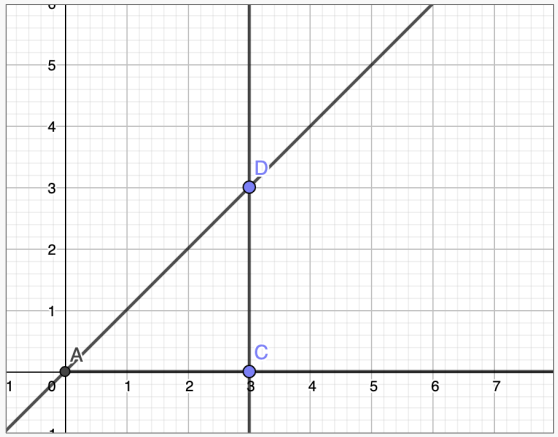
Step 3: Select the Point on Object tool and then place a point on the ray.



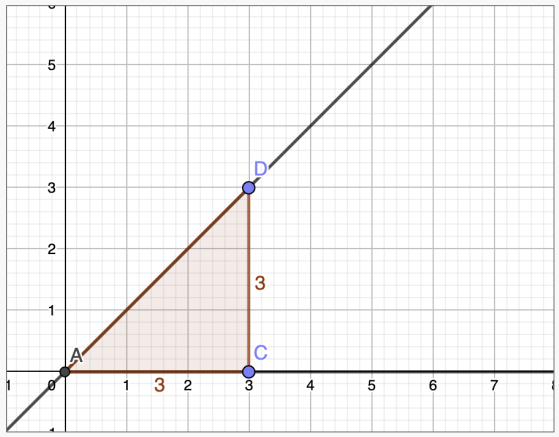
Step 4: Select the Perpendicular Line tool and then select point C and the ray.



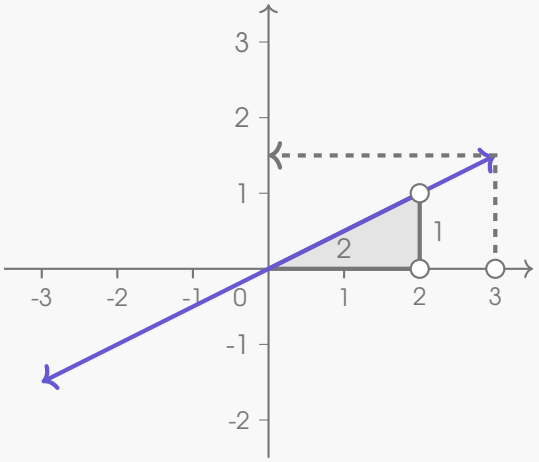
Step 5: Select the Line tool and then select point A and a coordinate on the line perpendicular to the ray.



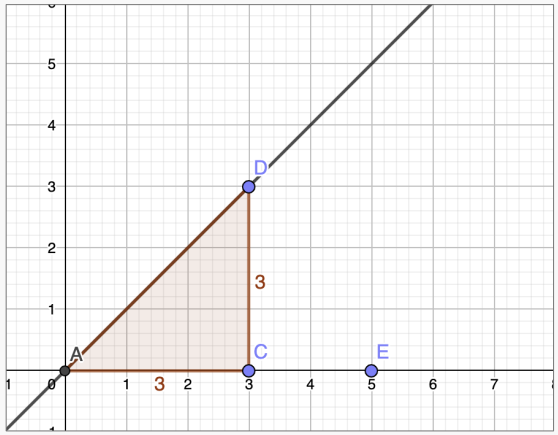
Step 6: Select the Polygon tool and then select points A → C → D → A. Show the label of each leg as its value. Hide the line perpendicular to the ray.



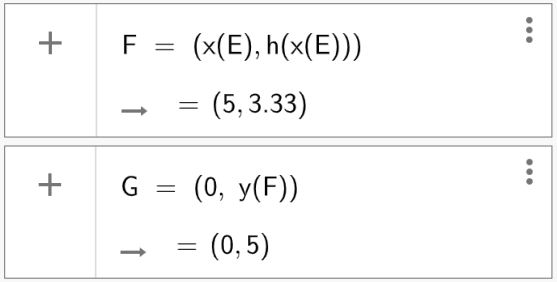
Mini-Objective 2: To use the line to demonstrate proportionality.



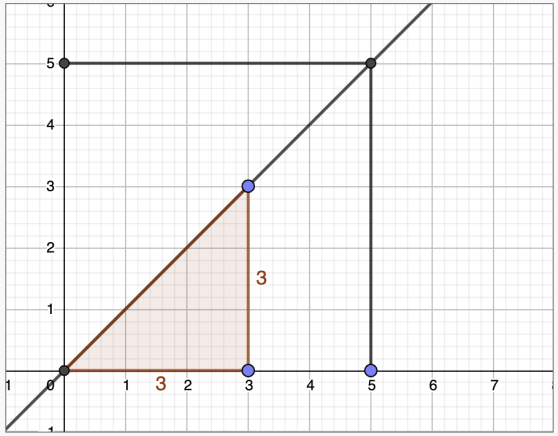
Step 7: Select the Point on Object tool and then place a point on the ray. Hide the ray.



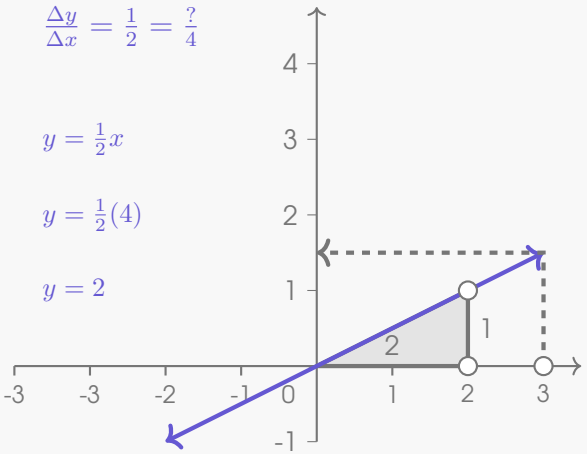
Step 8: Inside the algebra window, define the following points:.



Step 9: Select the Segment tool. Select points E and F and then select points F and G. Hide the label for all points.



Mini-Objective 3: To add some final touches.

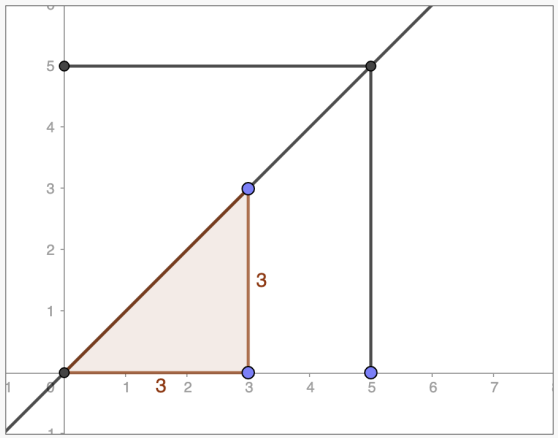


Step 10: Select the text tool, indicate text as a LaTeX Formula, and type the following LaTeX code:

```
\frac{\Delta y}{\Delta x} = \frac{ a }{ d } = \frac{?}{ x(F) }\\ \\ \\ \\y = a / d x \\ y= a / d ( x(F) )\\y= y(F)
```

Tip: The text within each yellow box is interpreted as the value of the indicated object. To provide the value of an object, select the advanced drop-down, navigate to the objects tab and select empty box.

Step 11: In the graphics settings, hide the grid and change the color of the axes to light gray.



Step 12: Customize the appearance to your liking.