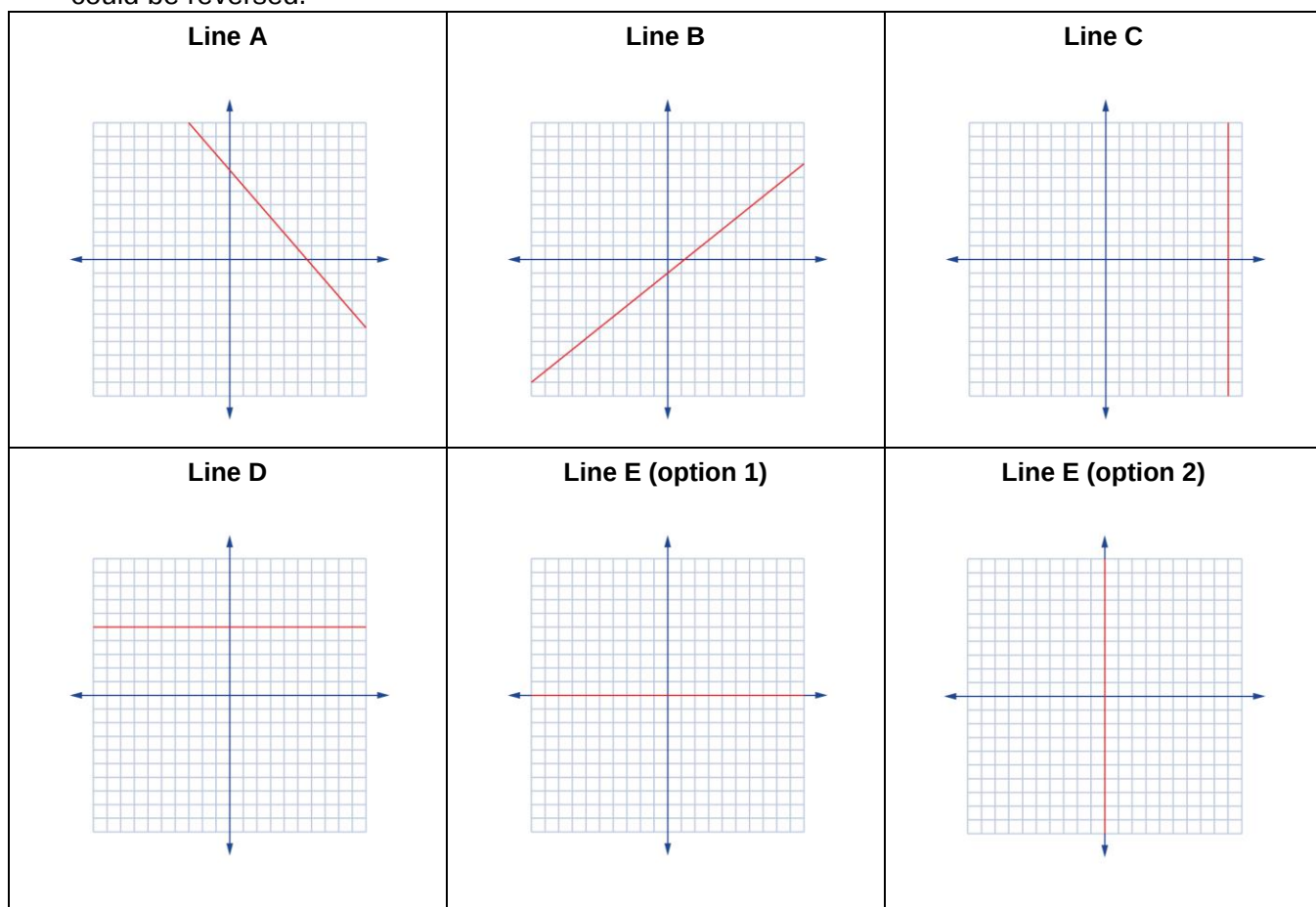


Module 5 lesson 2 Math Lab: Investigating Intercepts **Possible Solutions**

1. Samples of Lines A–E follow. Note that there are two options for Line E and Line C and D could be reversed.



2. Again, note that there are different options for Lines C, D and E. The answers here match the graphs above.

Line	Domain	Range	Slope
A	$\{x \in \mathbb{R}\}$	$\{y \in \mathbb{R}\}$	$-\frac{6}{5}$
B	$\{x \in \mathbb{R}\}$	$\{y \in \mathbb{R}\}$	$\frac{4}{5}$
C	$\{x x = 9\}$	$\{y \in \mathbb{R}\}$	undefined
D	$\{x \in \mathbb{R}\}$	$\{y y = 5\}$	0
E (option 1)	$\{x \in \mathbb{R}\}$	$\{y y = 0\}$	0
E (option 2)	$\{x x = 0\}$	$\{y \in \mathbb{R}\}$	0

Analysis IMPORTANT

3.
 - a. Diagonal lines that do not pass through the origin have exactly two intercepts.
 - b. Their slopes are non-zero real numbers.
 - c. The domain and the range of these lines are $x \in \mathbb{R}$ and $y \in \mathbb{R}$, respectively.
4.
 - a. Horizontal lines and vertical lines besides the x -axis and y -axis are lines with only one intercept. Diagonal lines that pass through the origin also only have one intercept.
 - b. Horizontal lines have zero slopes and vertical lines have undefined slopes. The slopes of diagonal lines are any non-zero real numbers.
 - c. The domain and range of horizontal and vertical lines are different in that one dimension is restricted to only one value.
5. Lines that have an infinite number of intercepts are lines that coincide with either the x -axis or the y -axis.