An Introduction To Explor...

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Edited with love by Mark Clark and Desmos Teaching Faculty

linear, slope, rate of change, intercept, slider, calculator

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ABOUT THIS ACTIVITY

Use this lesson to acquaint your students with the Desmos graphing interface, and to review procedures and language around linear functions.

YOUR PAST SESSIONS

CODE	STUDENTS	RUN DATE
X59E	19 students	Feb 3, 2016 at about 9:30 am

SCREENS preview

1. Move the slider for m (blu…
2. Question 1
   As you change the slider for "m,"
3. Now change the "b" slide…
4. Question 2
   As you change the slider for "b,"

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5. Graph the line y = 3x – 4 …

6. Question 3

What do you think is true about any line that is parallel to "y = 3x – 4"?

7. Now use the sliders to ch…

8. Question 4

What do you think is true about all the equations of lines that cross the y-axis in this place?

9. Type (0, 3) in row 4. Type …

10. Question 5

What is the equation of the line?

11. Plot the points (0, –2) an…

12. Question 6

What is the equation of the line?

13. Plot the points (0, –3) an…

14. Question 7

What is the equation of the line?

15. Finally, plot the points (0,…

16. Question 8

What is the equation of the line?

17. Congratulations!

You have just completed your first Desmos investigation! Give yourself a pat on the back! You earned it!

STUDENT SCREEN PREVIEW 1 of 17

Move the slider for m (blue dot in row 2) and think about what changing the m-value does to the graph.

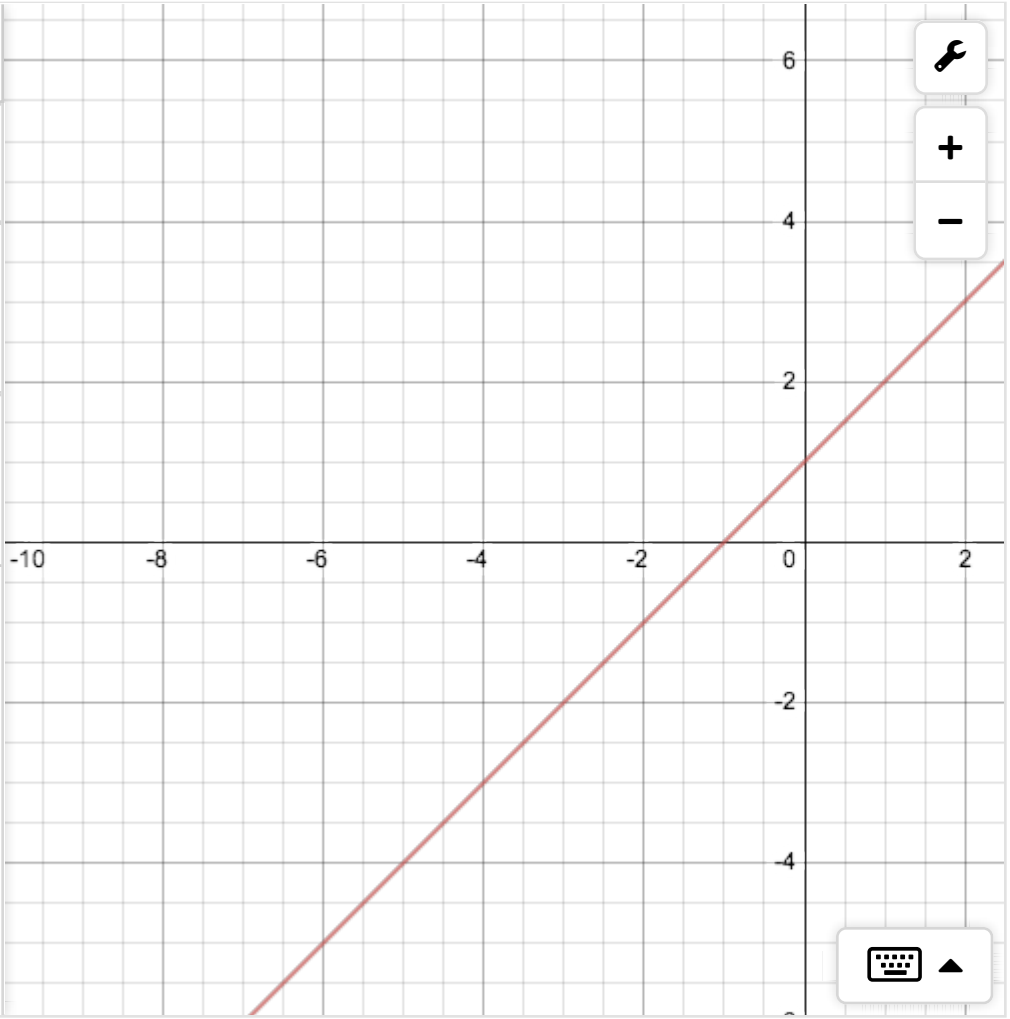
1 $y = mx + b$

2 $m = 1$

-10 10

3 $b = 1$

-10 10



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STUDENT SCREEN PREVIEW

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Question 1

As you change the slider for "m," what features of the line stay the same and what features change? (You should mention what happens when m is large, small, and negative.) You can go back to the previous screen if you want to play with the graph more.

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STUDENT SCREEN PREVIEW 3 of 17

Now change the "b" slider below and think about what changing the b-value does to the graph.

STUDENT SCREEN PREVIEW

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Question 2

As you change the slider for "b," what features of the line stay the same and what features change? You can go back to the previous screen if you want to play with the graph more.

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STUDENT SCREEN PREVIEW 5 of 17

Graph the line y = 3x – 4 by typing it into row 4. Then use the sliders in rows 2 and 3 to change the values of "m" and "b" to make a parallel line.

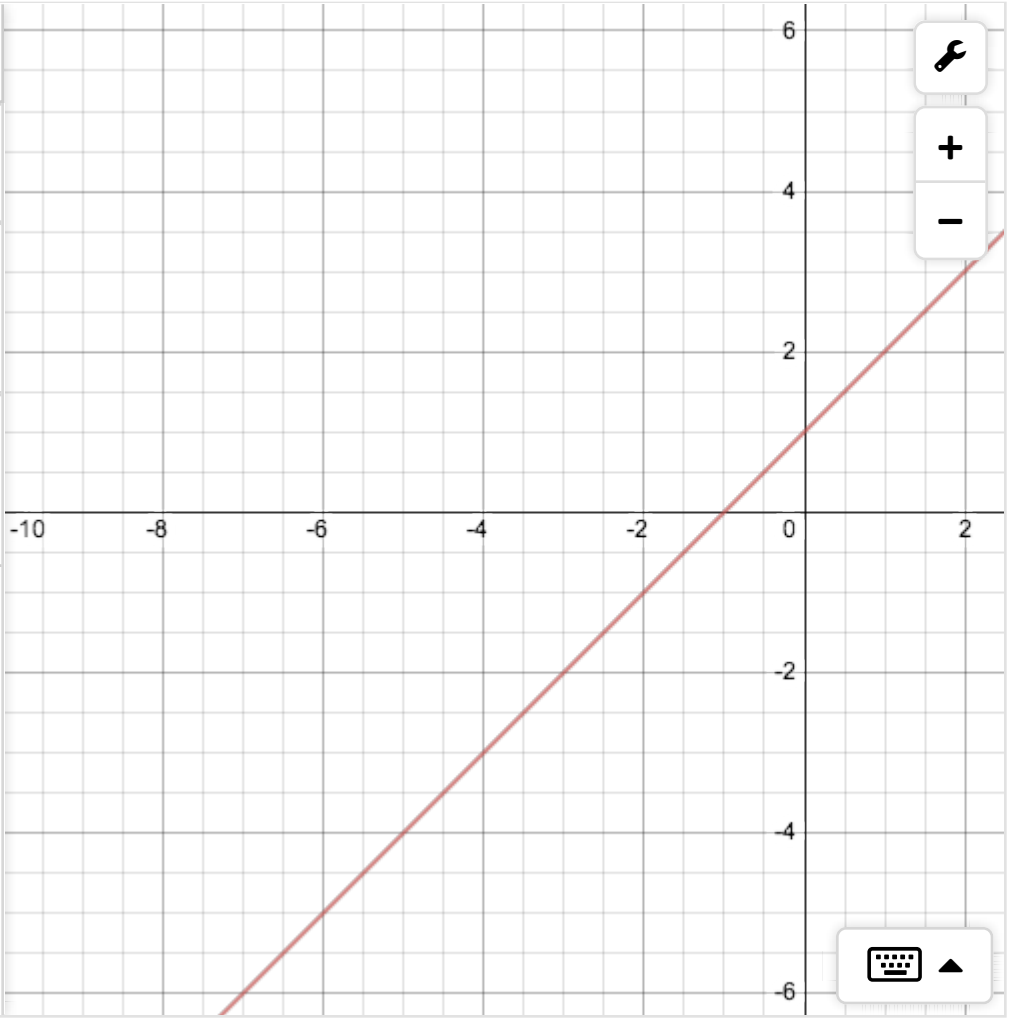
1 $y = mx + b$

2 $m = 1$

-10 10

3 $b = 1$

-10 10



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STUDENT SCREEN PREVIEW

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Question 3

What do you think is true about any line that is parallel to "y = 3x – 4"?

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STUDENT SCREEN PREVIEW 7 of 17

Now use the sliders to change the values of "m" and "b" so that the red line crosses the y-axis at the same point as the purple line.

1 $y = mx + b$

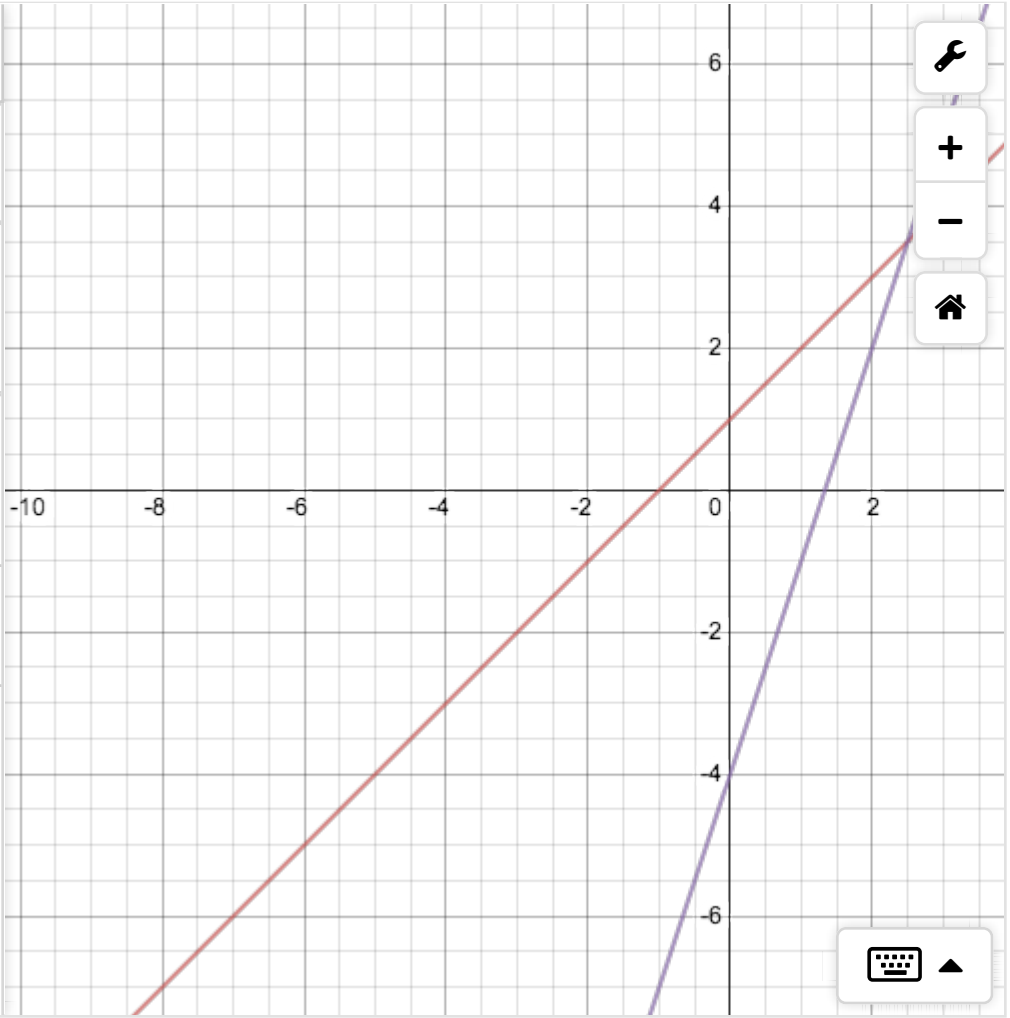
2 $m = 1$

-10 10

3 $b = 1$

-10 10

4 $y = 3x - 4$



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STUDENT SCREEN PREVIEW

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Question 4

What do you think is true about all the equations of lines that cross the y-axis in this place?

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STUDENT SCREEN PREVIEW 9 of 17

Type (0, 3) in row 4. Type (2, 11) in row 5. Now use the sliders to change the values of "m" and "b" so the line goes through both points.

1 $y = mx + b$

2 $m = 1$

-10 10

3 $b = 1$

-10 10

4

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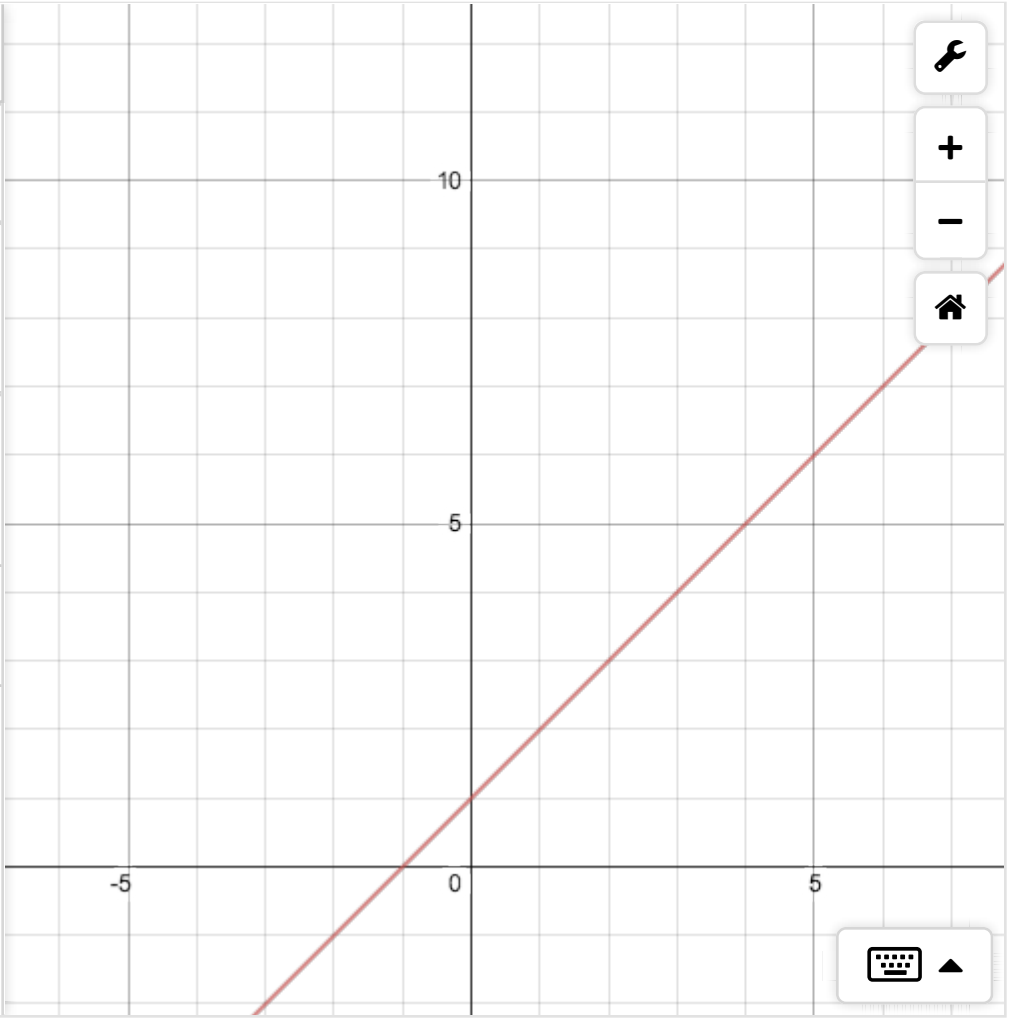

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Question 5

What is the equation of the line?

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STUDENT SCREEN PREVIEW

Plot the points (0, –2) and (4, 6). Adjust "m" and "b" until your line passes through both points.

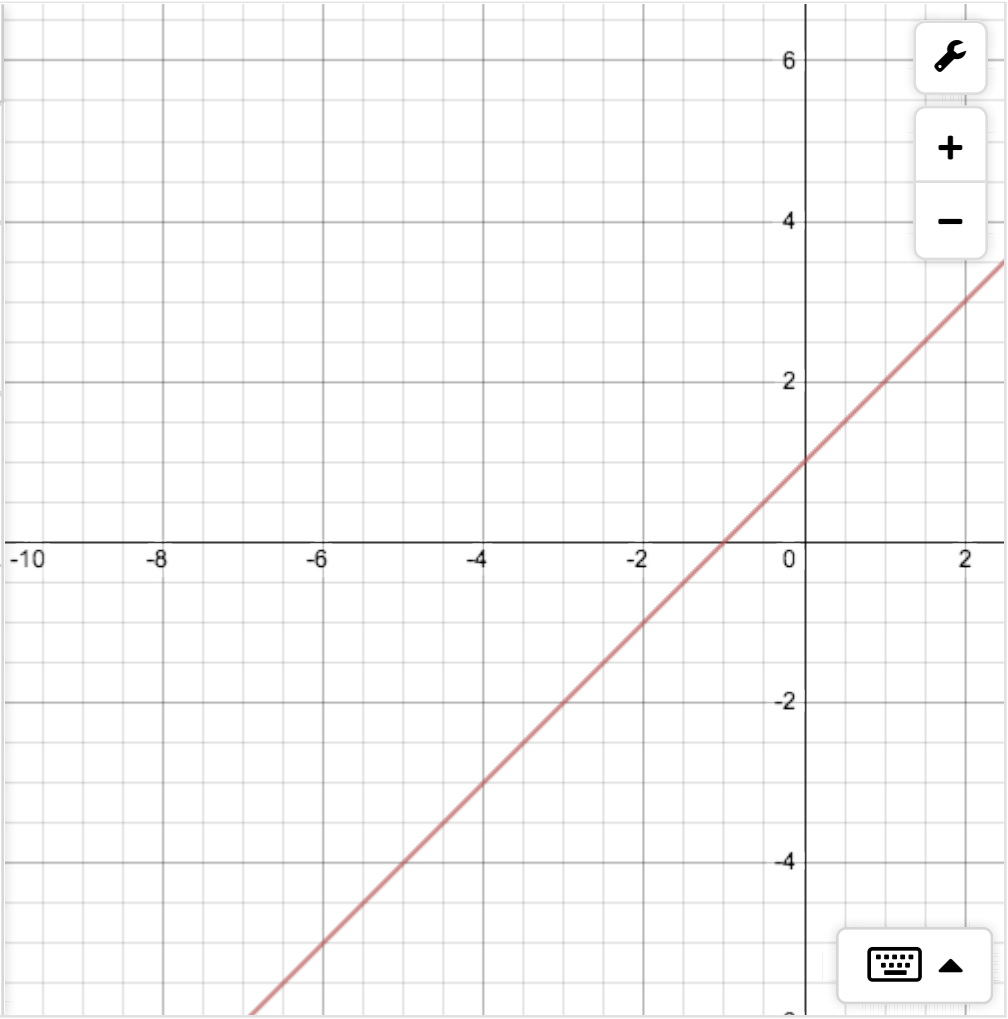
1 $y = mx + b$

2 $m = 1$

-10 10

3 $b = 1$

-10 10



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Question 6

What is the equation of the line?

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Plot the points (0, –3) and (–2, 7). Adjust "m" and "b" until your line passes through both points.

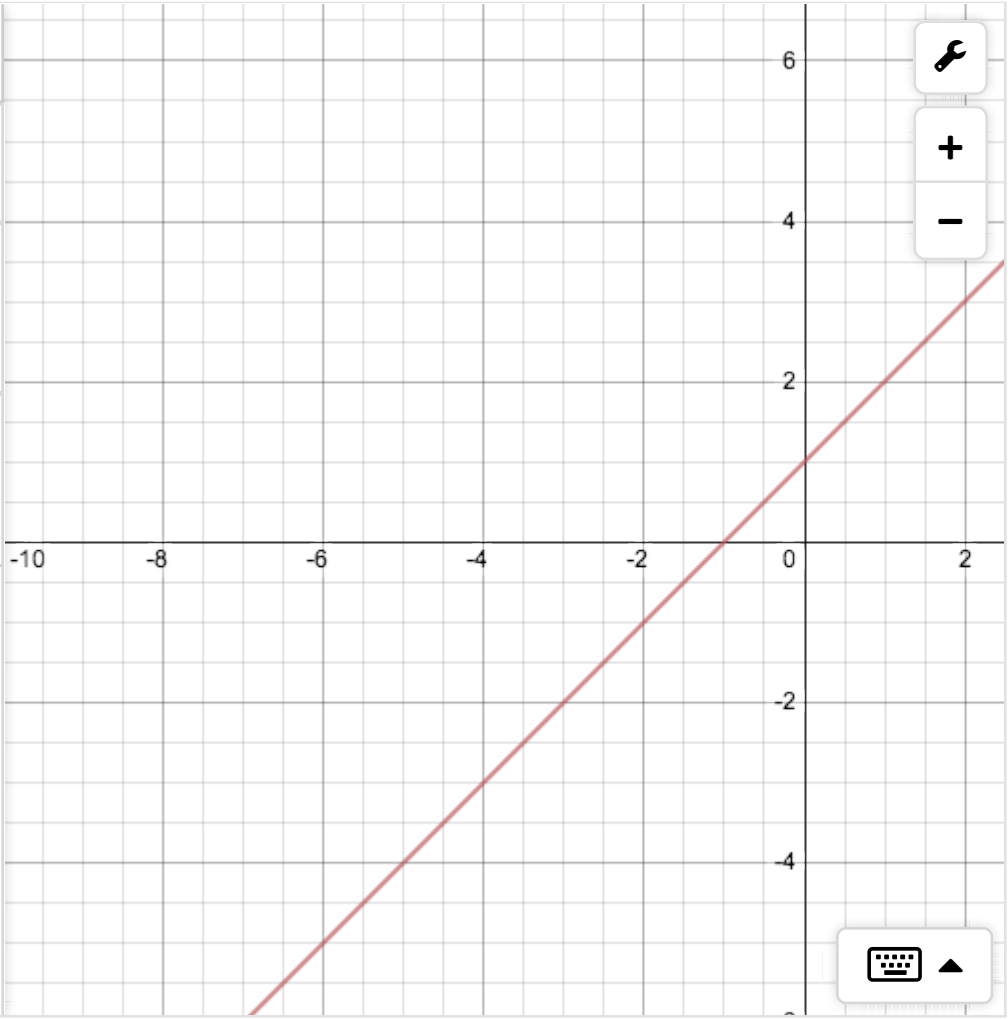
1 $y = mx + b$

2 $m = 1$

-10 10

3 $b = 1$

-10 10



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Question 7

What is the equation of the line?

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Finally, plot the points $(0, -5)$ and $(10, 0)$. Adjust "m" and "b" until your line passes through both points.

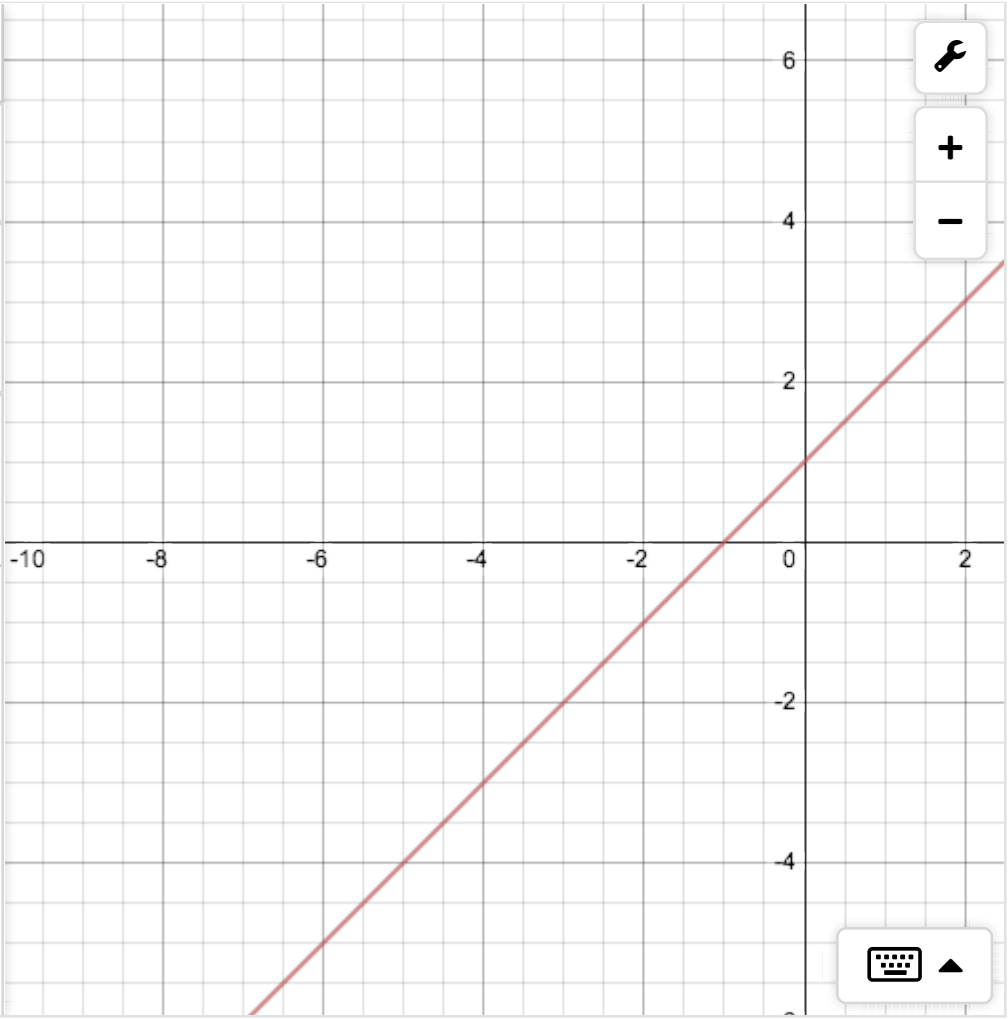
1 $y = mx + b$

2 $m = 1$

-10 10

3 $b = 1$

-10 10



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Question 8

What is the equation of the line?

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Congratulations!

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