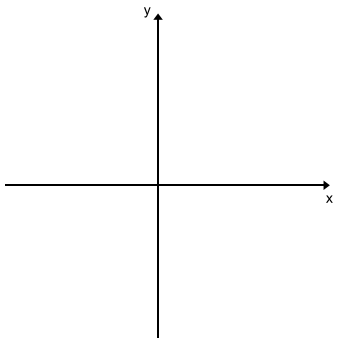
Name_____Sketching Lines Practice Hour _____ Date: 8/8/23

Paper and Pencil Sketching of Lines (Standard Form)



Graph 1
3x + 4y = 12

Label x intercept and y intercept

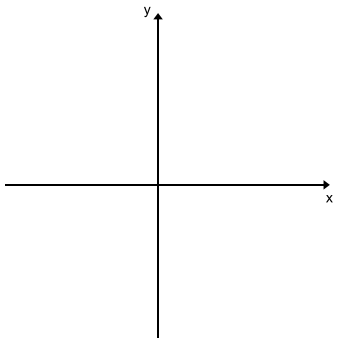
Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)

Convert to slope intercept form _____



Graph 2
5x - 3y = 30

Label x intercept and y intercept

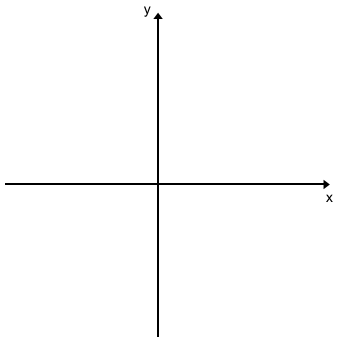
Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)

Convert to slope intercept form _____



Graph 3
-2x + 3y = 18

Label x intercept and y intercept

Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)

Convert to slope intercept form _____

In mathematics, when you truly understand what is going on, you can use letters to greatly speed up the process.

$y = \frac{-A}{B}x + \frac{C}{B}$ $\left(\frac{C}{A}, 0\right)$ $\left(0, \frac{C}{B}\right)$ $\left(x, \frac{-A}{B}x + \frac{C}{B}\right)$

$\left(\frac{-B}{A}y + \frac{C}{A}, y\right)$

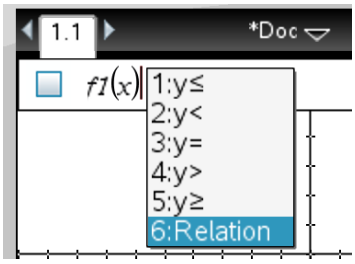
Technology Tips

How do I confirm the answers to the previous page with Desmos Apps?

Mr. Hickman wrote a slider-based program so you can check your work [Graphing Lines CRASH COURSE]

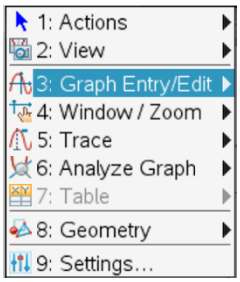
How do I enter a standard form line on TI Nspire?

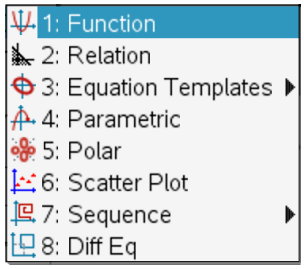
- Add Graph Page
- On Graph Entry Line delete "=" sign to get this pull-down menu
- Select 6: Relation
- Type Standard Form Line into this entry line



How do I rid of relation graph entry edit on graphs page?

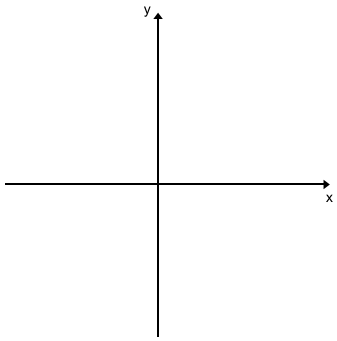
- Press Menu to get this pull-down menu
- Select 3: Graph Entry Edit to get the next pull-down menu
- Select 1: Function





Here are my expectations/hopes

1. You can determine the intercepts of a standard form line quickly and accurately (be careful with signs, division, and remember to plot x intercept on x axis and y intercept on y axis)
2. You sketch this line on a blank grid
3. You change the graph entry to relation on TI Nspire
4. You enter standard form line on TI Nspire
5. You determine slope intercept version using any method you wish
6. Convert standard form line into slope intercept form
7. You change graph entry back to function
8. You plot your slope intercept form on same grid as standard form (If they lie on top of each other everything is good)



Graph 4
-2x - 5y = 0

Label x intercept and y intercept

Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

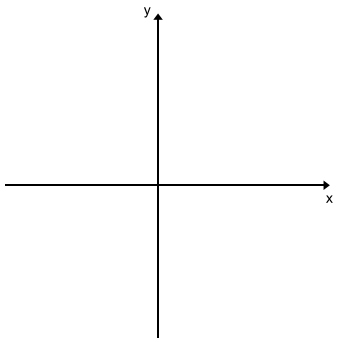
What is the x intercept? (____,0)

Convert to slope intercept form _____

Many think Graph 4 is the most challenging……. I don't, you just have to remember how to plot points using slope!

Name_____Sketching Lines Practice Hour _____ Date: 8/8/23

Paper and Pencil Sketching of Lines (Slope Intercept Form)



Graph 1

$y = \frac{4}{3}x - 12$

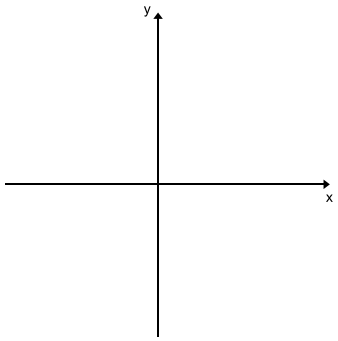
Label y intercept and another implied point

Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)



Graph 2

$y = \frac{-7}{3}x + 21$

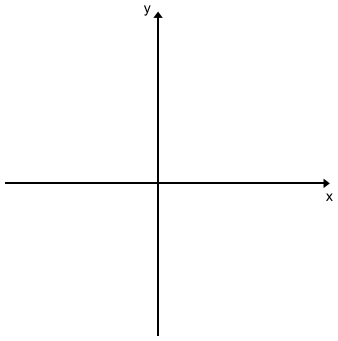
Label y intercept and another implied point

Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)



Graph 3

$y = -5x - 10$

Label y intercept and another implied point

Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)

In mathematics, when you truly understand what is going on, you can use letters to greatly speed up the process.

$-mx + y = b$

$y = m\left(x - \frac{b}{m}\right)$

$\left(\frac{-b}{m}, 0\right)$

$(0, b)$

$(x, mx + b)$

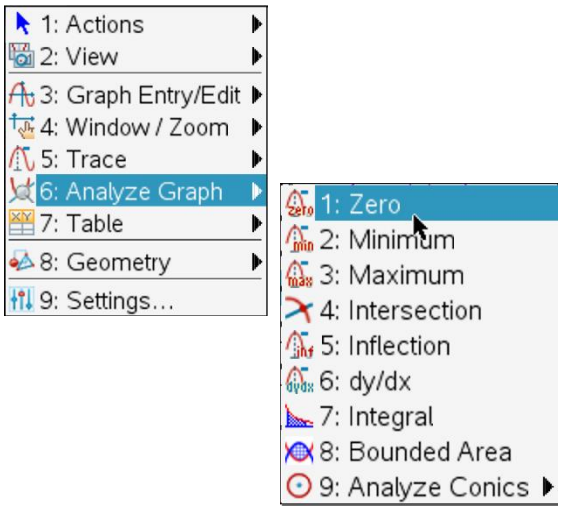
$\left(\frac{1}{m}y - \frac{b}{m}, y\right)$

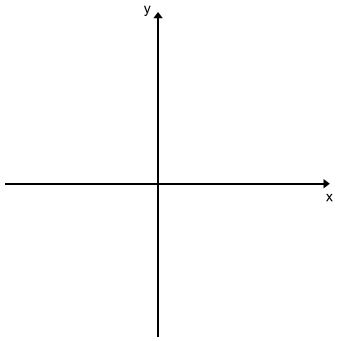
Tips when dealing with slope intercept form of the line

1. To find an x intercept replace y with 0 and solve for x
2. To find any point when you know x, replace x and evaluate y (know how to use the fraction features on calculators you use)
3. To find "nice points" on the graphs of slope intercept forms of lines replace x with a multiple of the denominator of slope
4. To find any point when you know y, replace y with given y and solve for x (know how to use the fraction features on calculators you use)

Using TI Nspire to APPROXIMATE x intercept

- Add a graphs page
- Add a slope intercept form of a line
- Press menu
- Select 6:Analyze Graph from Pull Down
- Then Select 1: Zero from Pull Down
- Select Lower Bound (any point to the LEFT of x intercept)
- Select Upper Bound (any point to the RIGHT of x intercept)





Graph 4

$$y = \frac{-9}{17}x$$

Label y intercept and another implied point

Show work to find the intercepts here

What is the slope? m = _____

What is the y intercept? (0, ____) b= _____

What is the x intercept? (____,0)

Many think Graph 4 is the most challenging……. I don't, you just have to remember how to plot points using slope!

Here are my expectations/hopes

1. You can determine the y intercept of a slope intercept form line INSTANTLY
2. You can determine the slope INSTANTLY
3. You can determine the x intercept of a slope intercept form line quickly and accurately quickly (be careful with signs, division, and remember to plot x intercept on x axis and y intercept on y axis)
4. You sketch this line on a blank grid
5. You confirm the x and y intercepts on the graph using Table and Zero Features TI Nspire