

# LINEAR INEQUALITIES

## Graphing Calculator Reference Sheet

**GRAPH the**  $y \leq 3x + 1$   
**INEQUALITY** slope-intercept form

$\geq$  or  $>$  : above  
 $\leq$  or  $<$  : below

### STEPS

### PICTURE

#### STEP 1: $Y1 = 3x + 1$

- Arrow to the far left side of Y1
- ENTER until the "shade below" symbol is displayed

$\blacktriangle Y1 \blacksquare 3X+1$

#### STEP 2: Adjust your WINDOW

- Set your graph to the standard window setting
- ZOOM - Choose 6:ZStandard

WINDOW  
Xmin=-10  
Xmax=10  
Xscl=1  
Ymin=-10  
Ymax=10  
Yscl=1

#### STEP 3: GRAPH

- The graph will shade the area that makes the inequality TRUE
- Move the cursor to identify coordinates
- NOTE:** You will not be able to see whether the calculator will always display a solid line or a dotted line for the inequality, as the calculator will always display a solid line by default.

# LINEAR INEQUALITIES

**GRAPH the SYSTEM**  $y > -2x + 4$   
 $y \leq x - 2$

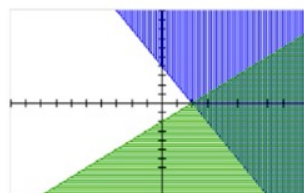
#### STEP 1: $Y1 = -2x + 4$ and $Y2 = x - 2$

- Change Y1 to display the shade above symbol
- Change Y2 to display the shade below symbol

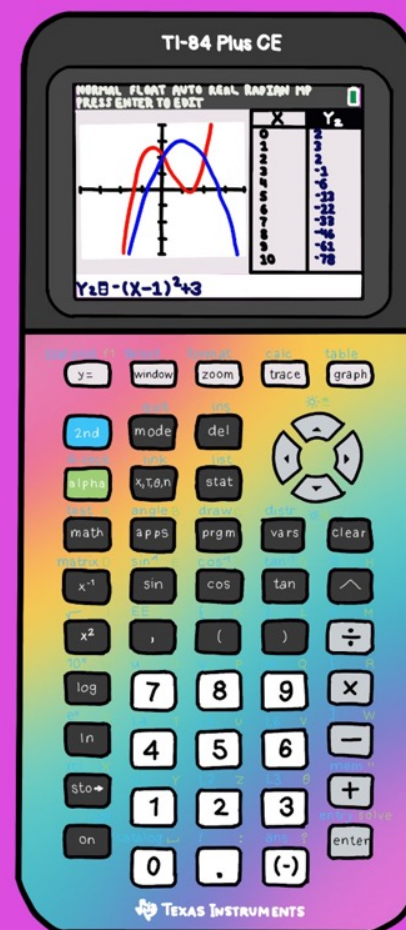
$\blacktriangle Y1 \blacksquare -2X+4$   
 $\blacktriangledown Y2 \blacksquare X-2$

#### STEP 2: GRAPH

- The double shaded region on the graph makes the system TRUE
- Move the cursor to identify coordinates



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## Graphing Calculator Reference Sheet

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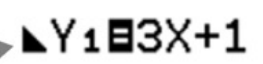
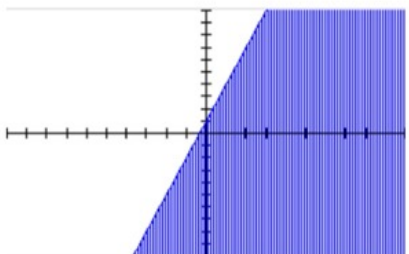
# LINEAR INEQUALITIES

## Graphing Calculator Reference Sheet

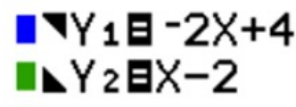
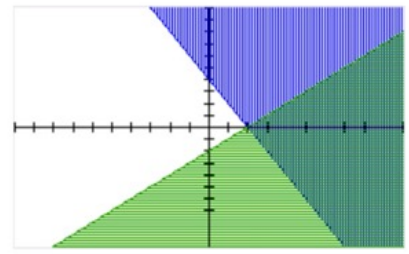
**GRAPH the INEQUALITY**  $y \leq 3x + 1$   
slope-intercept form

$\geq$  or  $>$  : above

$\leq$  or  $<$  : below

STEPS	PICTURE
<input type="checkbox"/> <b>STEP 1: <math>Y1 = 3x + 1</math></b> <ul style="list-style-type: none"> <li>Arrow to the far left side of Y1</li> <li>ENTER until the "shade below" symbol is displayed</li> </ul>	
<input type="checkbox"/> <b>STEP 2: Adjust your WINDOW</b> <ul style="list-style-type: none"> <li>Set your graph to the standard window setting</li> <li>ZOOM – Choose 6:ZStandard</li> </ul>	WINDOW Xmin=-10 Xmax=10 Xscl=1 Ymin=-10 Ymax=10 Yscl=1
<input type="checkbox"/> <b>STEP 3: GRAPH</b> <ul style="list-style-type: none"> <li>The graph will shade the area that makes the inequality TRUE</li> <li>Move the cursor to identify coordinates</li> <li><b>NOTE:</b> You will have to determine whether to draw a solid line or a dotted line for the inequality, as the calculator will always display a solid line by default.</li> </ul>	

**GRAPH the SYSTEM**  $y > -2x + 4$   
 $y \leq x - 2$

<input type="checkbox"/> <b>STEP 1: <math>Y1 = -2x + 4</math> and <math>Y2 = x - 2</math></b> <ul style="list-style-type: none"> <li>Change Y1 to display the shade above symbol</li> <li>Change Y2 to display the shade below symbol</li> </ul>	
<input type="checkbox"/> <b>STEP 2: GRAPH</b> <ul style="list-style-type: none"> <li>The double shaded region on the graph makes the system TRUE</li> <li>Move the cursor to identify coordinates</li> </ul>	

# LINEAR INEQUALITIES

## Graphing Calculator Practice Sheet

Name: \_\_\_\_\_ Date: \_\_\_\_\_

For each inequality, write it in slope-intercept form. Then, check the boxes of the points that are solutions to the inequality. Then, graph the inequality.

INEQUALITY	SOLUTION(S)	GRAPH
<b>1</b> Standard Form $3x - 4y < 12$ Slope-Intercept Form	<input type="checkbox"/> (0,0) <input type="checkbox"/> (4,0) <input type="checkbox"/> (6,-2) <input type="checkbox"/> (-4,-3)	
<b>2</b> Standard Form $-2x + y \leq -3$ Slope-Intercept Form	<input type="checkbox"/> (0,0) <input type="checkbox"/> (-2,0) <input type="checkbox"/> (2,1) <input type="checkbox"/> (5,-3)	
<b>3</b> Standard Form $x + 3y < 15$ Slope-Intercept Form	<input type="checkbox"/> (0,0) <input type="checkbox"/> (6,0) <input type="checkbox"/> (-3,6) <input type="checkbox"/> (4,4)	
<b>4</b> Standard Form $2x + 3y \geq 3$ Slope-Intercept Form	<input type="checkbox"/> (0,0) <input type="checkbox"/> (4,4) <input type="checkbox"/> (-2,1) <input type="checkbox"/> (3,-1)	



# LINEAR INEQUALITIES

## Graphing Calculator Practice Sheet

Name: \_\_\_\_\_ Date: \_\_\_\_\_

For each inequality, write it in slope-intercept form. Then, check the boxes of the points that are solutions to the inequality. Then, graph the inequality.

INEQUALITY	SOLUTION(S)	GRAPH
<b>1</b> Standard Form $3x - 4y < 12$ Slope-Intercept Form $y > \frac{3}{4}x - 3$	<input checked="" type="checkbox"/> (0,0) <input type="checkbox"/> (4,0) <input type="checkbox"/> (6,-2) <input checked="" type="checkbox"/> (-4,-3)	
<b>2</b> Standard Form $-2x + y \leq -3$ Slope-Intercept Form $y \leq 2x - 3$	<input type="checkbox"/> (0,0) <input type="checkbox"/> (-2,0) <input checked="" type="checkbox"/> (2,1) <input checked="" type="checkbox"/> (5,-3)	
<b>3</b> Standard Form $x + 3y < 15$ Slope-Intercept Form $y < -\frac{1}{3}x + 5$	<input checked="" type="checkbox"/> (0,0) <input checked="" type="checkbox"/> (6,0) <input type="checkbox"/> (-3,6) <input type="checkbox"/> (4,4)	
<b>4</b> Standard Form $2x + 3y \geq 3$ Slope-Intercept Form $y \geq -\frac{2}{3}x + 1$	<input type="checkbox"/> (0,0) <input checked="" type="checkbox"/> (4,4) <input type="checkbox"/> (-2,1) <input checked="" type="checkbox"/> (3,-1)	



# Digital Version in Google Slides

Follow the directions to graph an inequality and a system of inequalities.

## LINEAR INEQUALITIES

### Graphing Calculator Reference Sheet

**GRAPH the INEQUALITY**  $y \leq 3x + 1$  slope-intercept form

**STEPS**

**STEP 1:  $Y1 = 3x + 1$**

- Arrow to the far left side of Y1
- ENTER until the "shade below" symbol is displayed

**STEP 2: Adjust your WINDOW**

- Set your graph to the standard window setting
- ZOOM – Choose 6:ZStandard

**STEP 3: GRAPH**

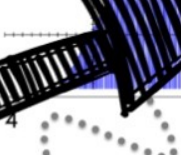
- The graph will shade the area that makes the inequality TRUE
- Move the cursor to identify coordinates
- You will have to determine whether to draw a solid or a dotted line for the inequality, as the inequality symbol always displays a solid line

**PICTURE**

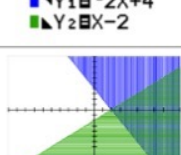
$Y1 \leq 3X + 1$

**WINDOW**

Xmin=-10  
Xmax=10  
Xscl=1  
Ymin=-10  
Ymax=10  
Yscl=1



$Y1 \geq -2X + 4$   
 $Y2 \leq X - 2$



Is (-5,1) a solution to the inequality?

Type Answer Here

Is (7,-2) a solution to the systems of inequalities?

Type Answer Here

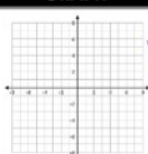
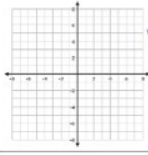
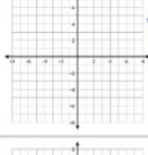
Add your own directions and questions!

## LINEAR INEQUALITIES

### Graphing Calculator Practice Sheet

Name: \_\_\_\_\_ Date: \_\_\_\_\_

For each inequality, write it in slope-intercept form. Then, check the boxes of the points that are solutions to the inequality. Then, graph the inequality.

INEQUALITY	SOLUTION(S)	GRAPH
1) Standard Form $3x - 4y < 12$ Slope-Intercept Form <input type="text" value="insert equation"/>	<input type="checkbox"/> (0,0) <input checked="" type="checkbox"/> (4,0) <input type="checkbox"/> (6,-2) <input type="checkbox"/> (-4,-3)	
2) Standard Form $-2x + y \leq -3$ Slope-Intercept Form <input type="text" value="insert equation"/>	<input type="checkbox"/> (0,0) <input checked="" type="checkbox"/> (-2,0) <input checked="" type="checkbox"/> (2,1) <input type="checkbox"/> (5,-3)	
3) Standard Form $x + 3y < 15$ Slope-Intercept Form <input type="text" value="insert equation"/>	<input type="checkbox"/> (0,0) <input checked="" type="checkbox"/> (4,4) <input checked="" type="checkbox"/> (-2,1) <input type="checkbox"/> (3,-1)	

**GRAPHS:**

- Edit the lines for the graph
- Insert a new line and choose scribble to shade the correct area.

Students can digitally type answers and edit graphs

## Note to Teacher

- 1 You and your students will each need a Google account (free) and the Internet to do this activity.
- 2 Click on this link to access the digital version:
 

**Graphing Calculator Reference Sheets**
- 3 You will be prompted to make your own copy. You should click "make a copy". If the prompt does not show up, click File -> Make a copy -> Ok
- 4 You can now add your own directions and questions using sticky notes, text boxes, or the pen to digitally write on each page.
- 5 Then, send a copy to students via Google Classroom. Attach the Slides from your Google Drive and select "make a copy for each student" in the dropdown box. If you don't have Google Classroom, you can share your file with each student and then have them click on this icon and choose "make a copy".

Make a copy for each student





**Hello!** I'm Tyra — an educational blogger and curriculum designer. I provide creative, comprehensive, and clear resources for middle and high school math teachers. My goal is to create content that is easy to implement for the teacher, and helps students connect knowledge with understanding...one lesson at a time.

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