

Basic Linear Inequality

We know when students are just beginning their study of algebra, the basic concepts can be difficult to grasp. These activities are written for teachers to use in their basic algebra classes.

When you find other helpful exercises, add these to your own eActivities.

Good exercises encourage students!

This file includes eActivities on:

Domain – Drag and drop the inequality onto the graph to find the domain.

Graph of Inequality – What does each inequality look like when graphed?

Graph the System of Linear Inequalities – Graph and then solve by finding where they intersect.

Solve Inequalities with Absolute Value – Try your hand at solving these inequalities!

Domain

Drag and drop the inequality onto the graph to find the domain.

The left screenshot shows a window titled "Domain" with the following content:

<Example>
Open the Graph window, drag the inequality and drop it to the Graph window.
 $-1 \leq x \leq 3$

Graph window ---->

Tap Analysis/Trace. Find the domain.

Try your own.
Find the domain
 $1 \leq x \leq 3$
 $-1 \leq x \leq 0$ or $1 \leq x \leq 5$
 $-1 \leq x \leq 5$ and $1 \leq x \leq 6$

The right screenshot shows a window titled "Domain" with the following content:

<Example>
Open the Graph window, drag the inequality and drop it to the Graph window.
 $-1 \leq x \leq 3$

Graph window ---->

The graph shows a coordinate plane with a shaded region between $x=1$ and $x=5$ on the x-axis.

Graph of Inequality

What does each inequality look like when graphed?

The left screenshot shows a window titled "Graph of Inequality" with the following content:

<Example>
 $y = 4 - \frac{x}{2}$, $y \leq 4 - \frac{x}{2}$

Graph Editor

Open the Graph editor and tap the graph button. You have $y = 4 - \frac{x}{2}$.

Check the box for $y \leq 4 - \frac{x}{2}$ and tap the graph button.

Try your own.
 $y \geq 2x - 3$

The middle screenshot shows a window titled "Edit Type GMem" with the following content:

Sheet1 Sheet2 Sheet3

$y_1 = 4 - \frac{x}{2}$ [---]

$y_2 \leq 4 - \frac{x}{2}$ [---]

$y_3 = 0$

$y_4 = 0$

$y_5 = 0$

$y_6 = 0$

The graph shows a coordinate plane with a shaded region bounded by the lines $y = 4 - \frac{x}{2}$ and $y = 4 - \frac{x}{2}$.

The right screenshot shows a window titled "Graph Editor" with the following content:

Open the Graph editor and tap the graph button. You have $y = 4 - \frac{x}{2}$.

Check the box for $y \leq 4 - \frac{x}{2}$ and tap the graph button.

Try your own.

$y \geq 2x - 3$

$y > 1$

$x < 3$

$x \leq y - 1$

Graph the System of Linear Inequalities

Graph and then solve by finding where they intersect.

File Edit Insert Action

Graph the System of Linear Inequalities

<Example>
 $y \geq x - 3$, $y \leq 4 - x$

Graph Editor

Open the Graph editor and tap the graph button.

On the Graph window, tap Analysis/G-Solve/Intersect and find the intersection.

Try your own.

$y \geq x + 3$, $y \leq 4 + x$	Y1:...	Y2:...
$y > 1$, $y < -1$	Y1:...	Y2:...

Assist Cplx Rad

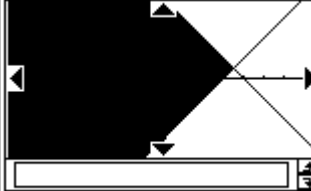
File Edit Insert Action

Graph the System of Linear Inequalities

<Example>
 $y \geq x - 3$, $y \leq 4 - x$

Graph Editor

Open the Graph editor and tap the graph button.



Assist Cplx Rad

File Edit Insert Action

Graph the System of Linear Inequalities

<Example>
 $y \geq x - 3$, $y \leq 4 - x$

Graph Editor

Open the Graph editor and tap the graph button.

On the Graph window, tap Analysis/G-Solve/Intersect and find the intersection.

Try your own.

$y \geq x + 3$, $y \leq 4 + x$	Y1:...	Y2:...
$y > 1$, $y < -1$	Y1:...	Y2:...
$y < 1$, $y > -1$	Y1:...	Y2:...
$y < -1$, $x > 1$	Y1:...	Y2:...

Assist Cplx Rad

Solve Inequalities with Absolute Value

Try your hand at solving these inequalities!

File Edit Insert Action

Solve Inequalities with Absolute Value

<Example>
 Solve $|2x - 3| \leq 8$.

Calculator

The solution is $-\frac{5}{2} \leq x \leq \frac{11}{2}$.

Try your own.

Solve $|x - 3| \leq 8$.

Calculator

Solve $|2x + 3| \leq 8$.

Calculator

Alg Standard Cplx Rad

Edit Action Interactive

$|2x - 3| \leq 8$

$|2 \cdot x - 3| \leq 8$

absExpand(ans) $-8 \leq 2 \cdot x - 3 \leq 8$

$(-8 \leq 2 \cdot x - 3) + 3$ $-5 \leq 2 \cdot x$

ans/2 $-\frac{5}{2} \leq x$

$(2 \cdot x - 3 \leq 8) + 3$ $2 \cdot x \leq 11$

ans/2 $x \leq \frac{11}{2}$

Alg Standard Cplx Rad

File Edit Insert Action

Solve $|2x - 3| \leq 8$.

Calculator

The solution is $-\frac{5}{2} \leq x \leq \frac{11}{2}$.

Try your own.

Solve $|x - 3| \leq 8$.

Calculator

Solve $|2x + 3| \leq 8$.

Calculator

Solve $|2x + 3| \geq -8$.

Calculator

Alg Standard Cplx Rad