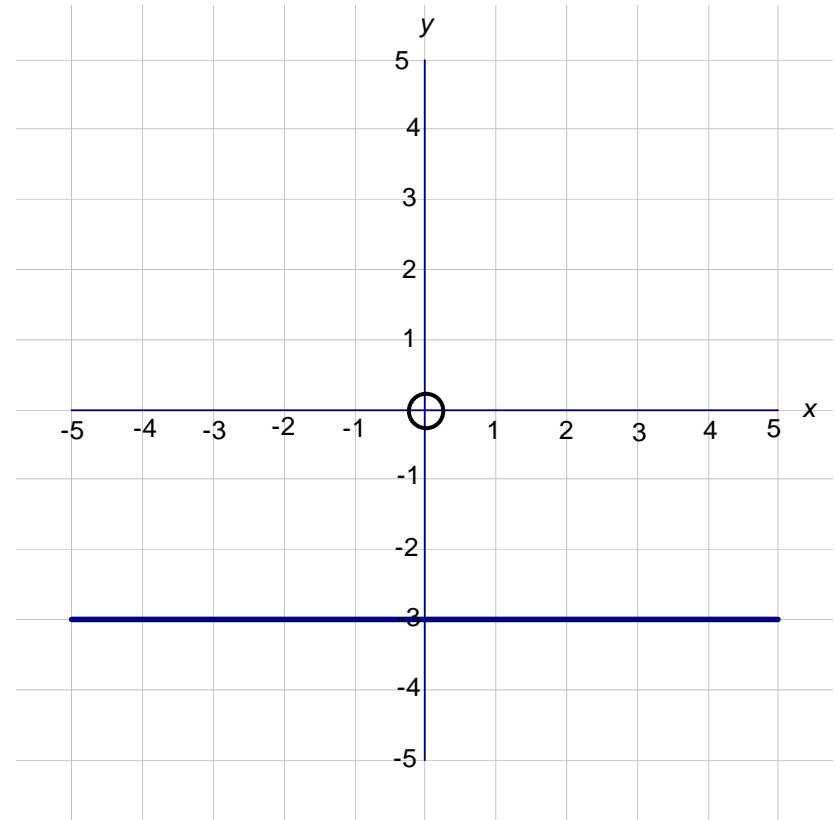
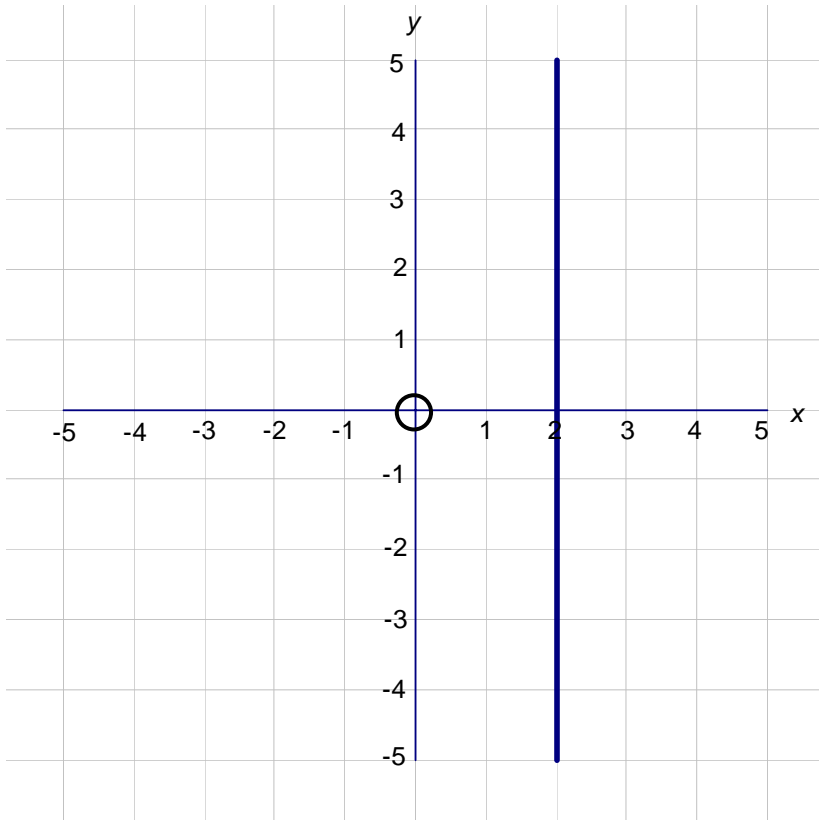
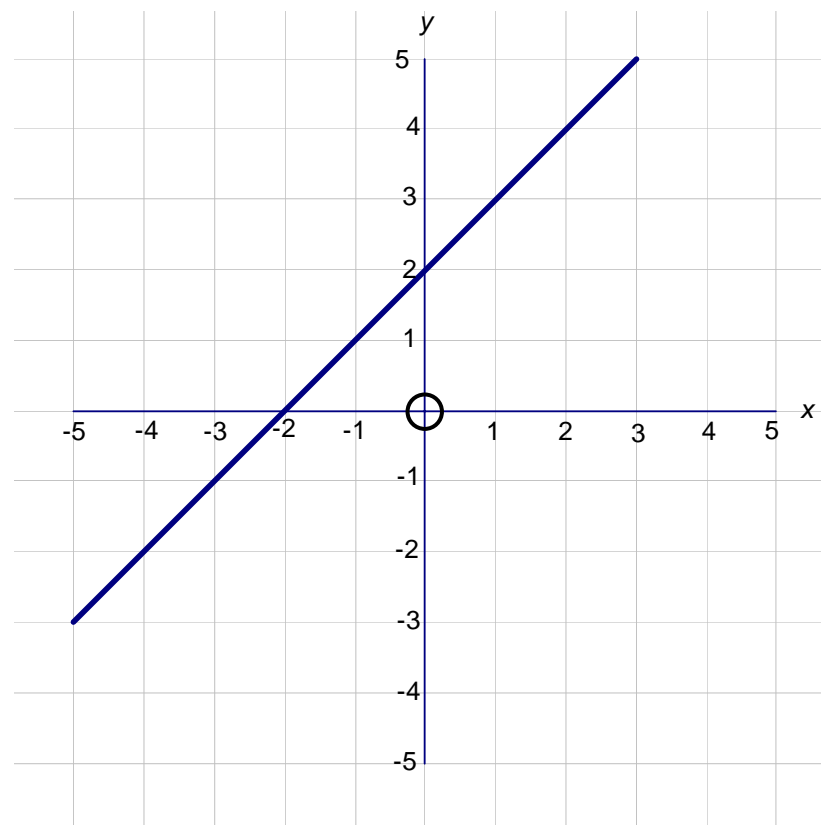
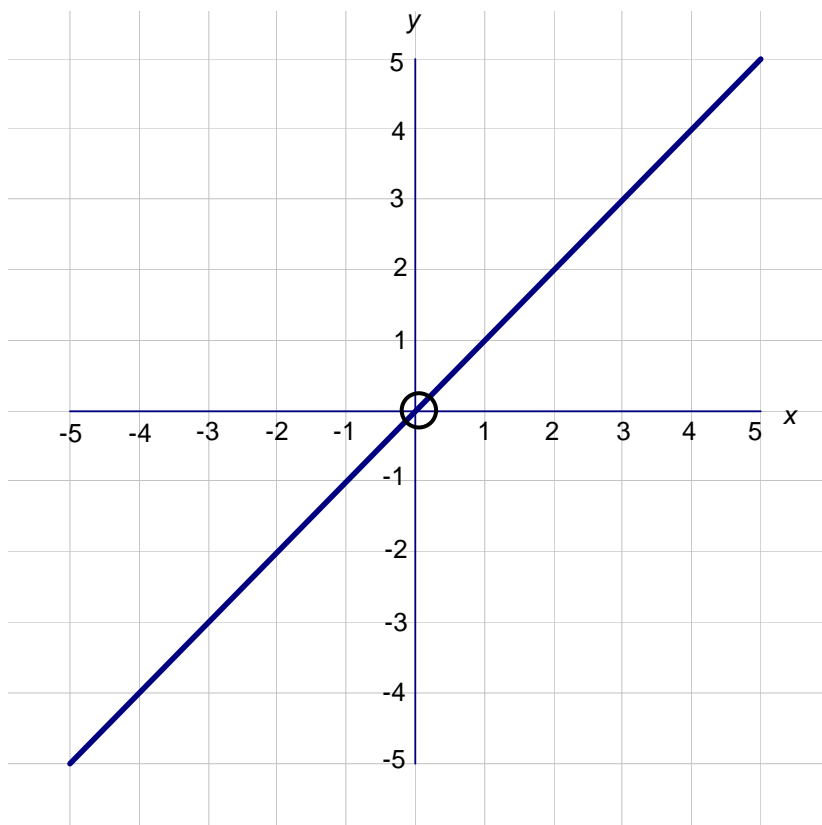
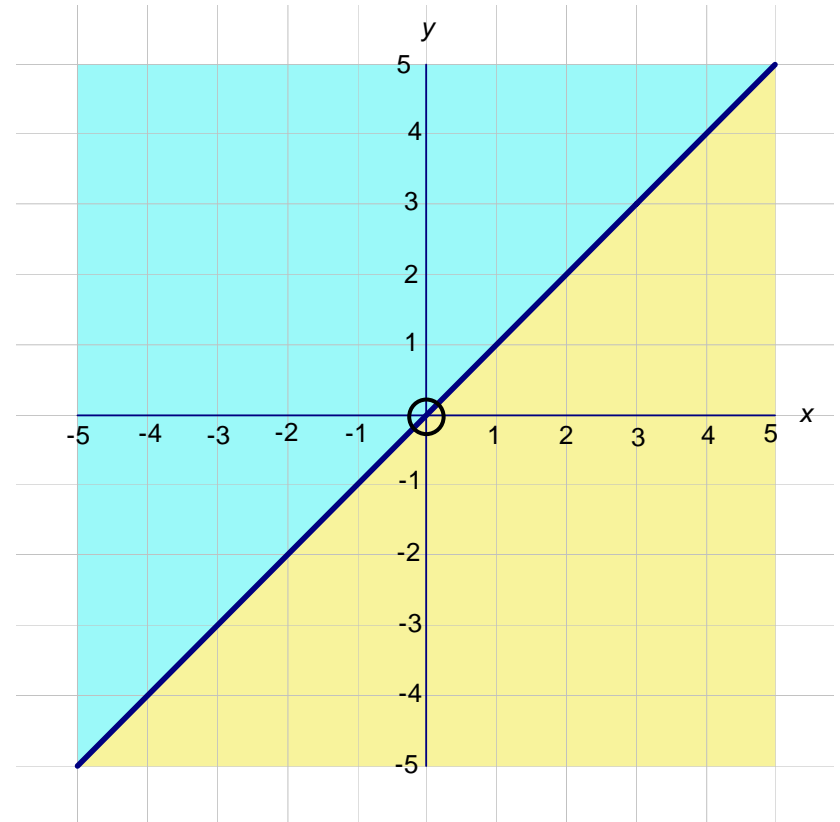
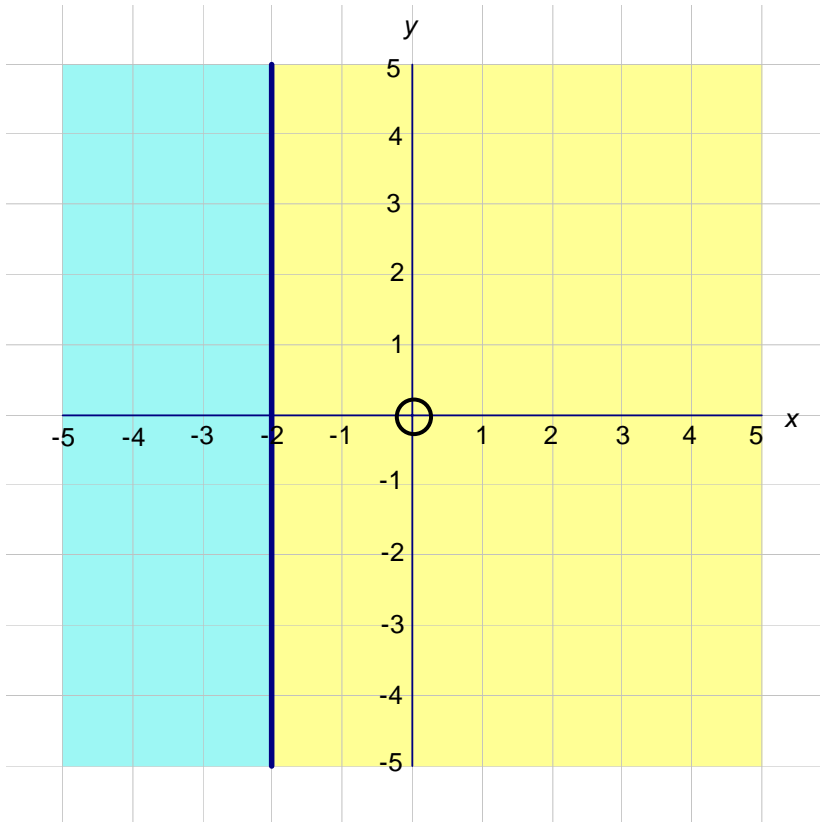




## Activity 3 Starter









## EXPLORERS ACTIVITY 3 - CAPTAIN'S LOG



Your aim in this mission is to destroy some rogue asteroids blocking the Orbital Highway.

You will receive special recognition if you can:

- collect the maximum amount of ore from each asteroid that you destroy.

### Getting Started

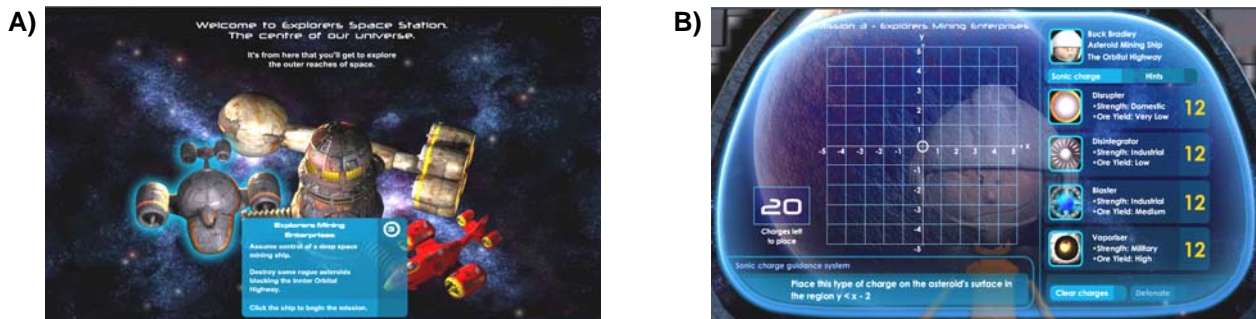
Click on the mining ship docked at Explorers Space Station to start (see screen shot A below).

Within your group, discuss the information that appears on screen (see screen shot B below).

Experiment with the activity—in particular, observe what happens if you:

- click on one of the four different types of sonic charges
- drag and drop a sonic charge over the asteroid grid
- click on the 'Clear Charges' button in the bottom corner.

What do you imagine each section of the screen is meant to show?



The 'Detonate' button will initially be inactive.

It will only become active once the set number of sonic charges have been placed.

Once clicked, your sonic charges will explode.

The outcome you get will depend on:

- the combination of sonic charges you have used
- how many of your charges were correctly placed.

### Discussion Time

Take some time to discuss this problem with the rest of your group.

- How are you going to approach this problem?
- What information will you need to use?
- What overall strategy are you going to employ?

Write your comments in this space.



## Recording Your Results

Drag and drop your chosen charges onto the asteroid's surface.

Once the set number of charges has been placed, count how many of each type you have used.

Record your figures in the results table on the separate sheet.



Once ready, click the 'Detonate' button to proceed.

Use the feedback provided to determine how successful you have been.

Record your outcomes after each attempt in the results table on the separate sheet.

Repeat the process for each asteroid until the table is complete.

Within your group, discuss your results:

- How would you describe your results?
- Can you see any patterns in your results?
- Is it possible to explain your results?

Describe and attempt to explain your results in this space.

## Finishing Off

Now, within your group, discuss the following:

- How satisfied were you with your performance?
- Were the strategies you employed successful?
- How would you do things differently next time?

Write your comments in this space.



# EXPLORERS MINING ENTERPRISES — RESULTS



There's no time to waste... those commuters on the Orbital Highway aren't happy. We've got a 67 light-year tailback to clear all the way back to the moons of Epsilon Prime. Record your results every time you detonate your charges in the table shown below. Keep your results safe at the end... you'll need them again soon.

## Sonic Charges Used

## Detonation

## Asteroid Ore Collected

Disrupter	Disintegrator	Blaster	Vaporiser
-----------	---------------	---------	-----------

Charges Detonated
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Value Of Collected Ore (Credits)	Maximum Ore Yield (Credits)	% Of Maximum Ore Collected
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### Andromeda 364

Attempt 1

Attempt 2

Attempt 3

\_\_\_ out of 10

\_\_\_ out of 10

\_\_\_ out of 10

5000

5000

5000

### Betelgeuse 721

Attempt 1

Attempt 2

Attempt 3

\_\_\_ out of 15

\_\_\_ out of 15

\_\_\_ out of 15

7500

7500

7500

### Capricorn 918

Attempt 1

Attempt 2

Attempt 3

\_\_\_ out of 20

\_\_\_ out of 20

\_\_\_ out of 20

10000

10000

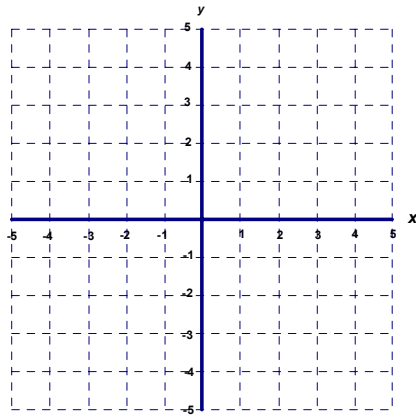
10000



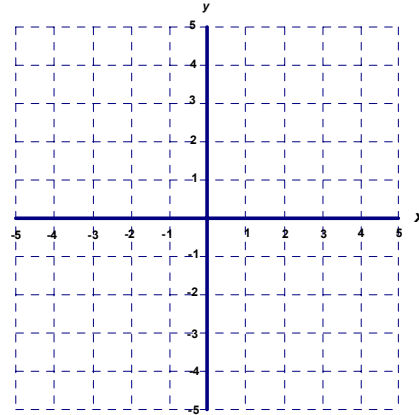


Andromeda 364

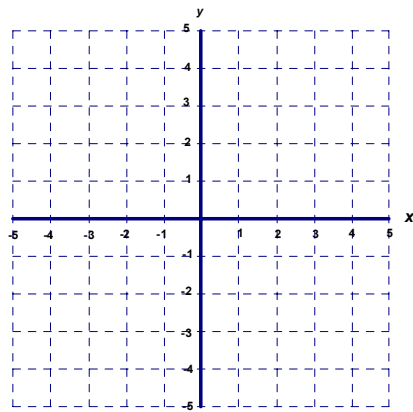
1  $x = 4$



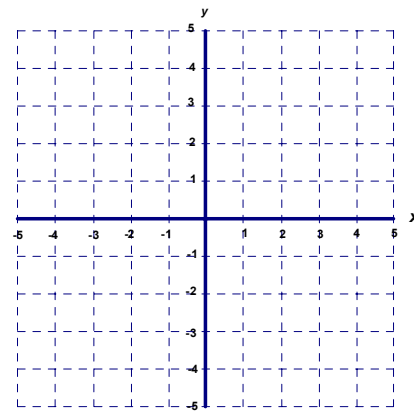
2  $y = 2$



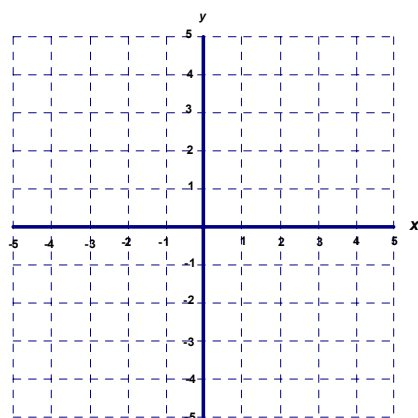
3  $x = -1$



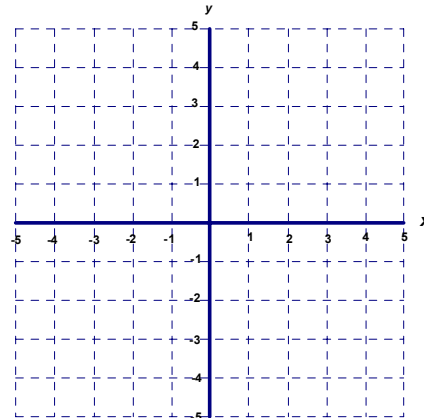
4  $y = -5$



5  $x = 0$



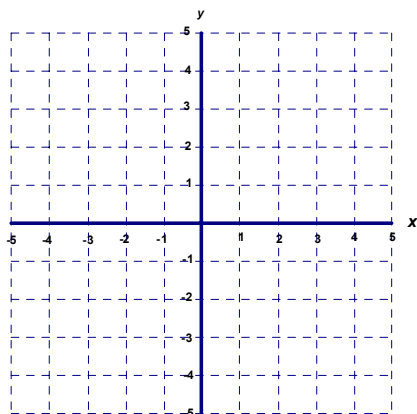
6  $x = 3$



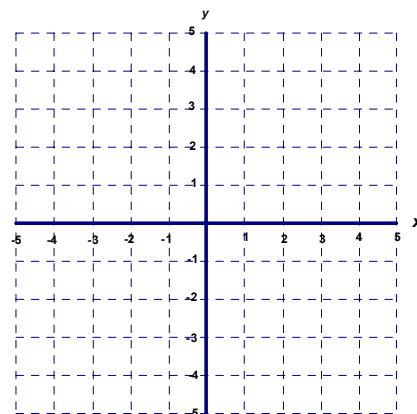




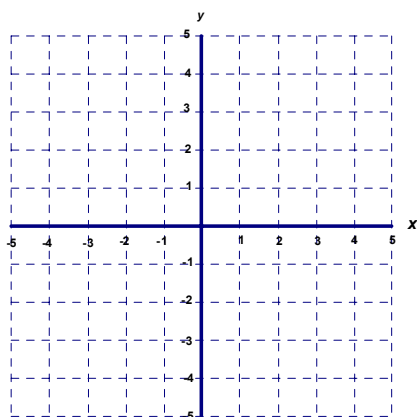
7  $y = -2$



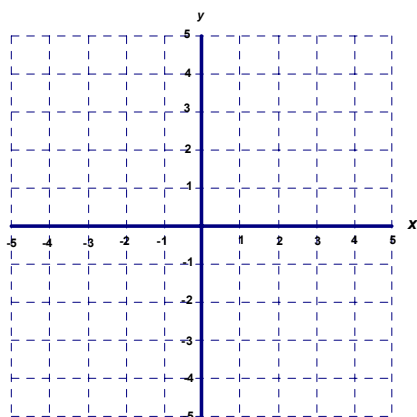
8  $y = 0$



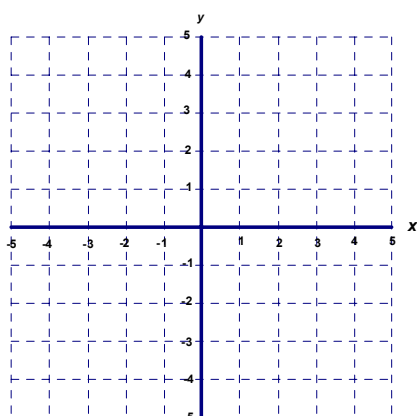
9  $y = x$



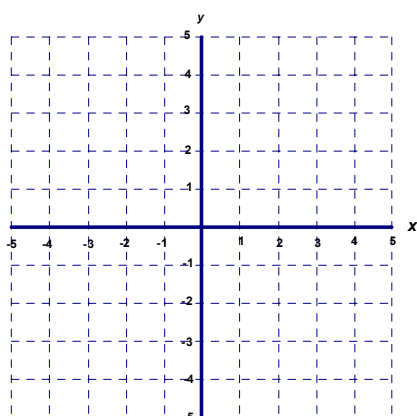
10  $y = x + 2$



11  $y = -x$



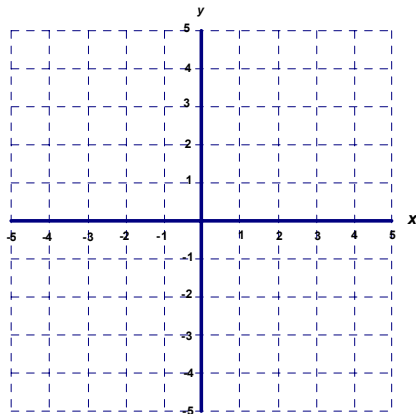
12  $y = x - 2$



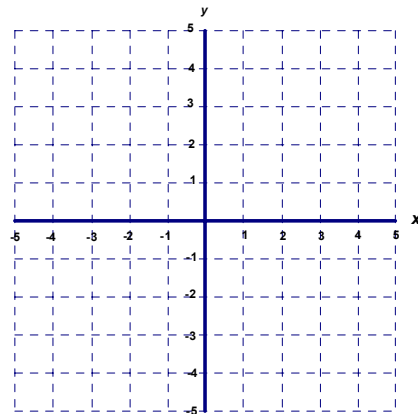


**Betelgeuse 721**

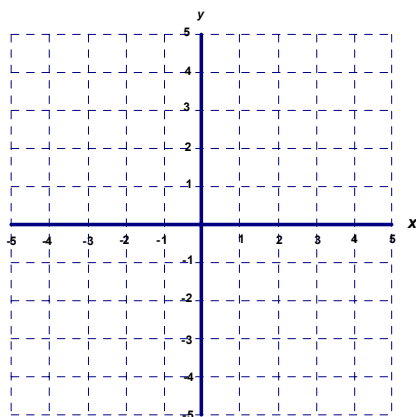
**1**      $y = x - 3$



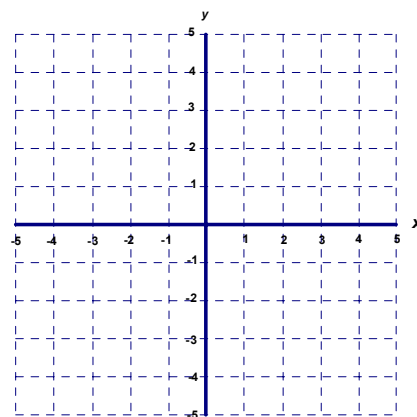
**2**      $y = x + 4$



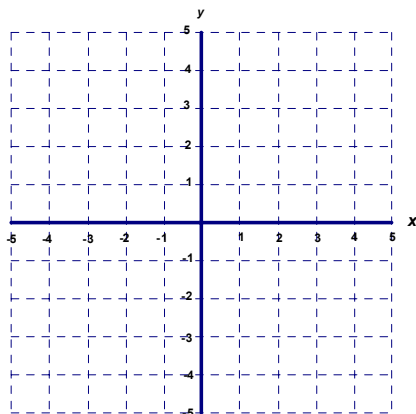
**3**      $y = 2x - 1$



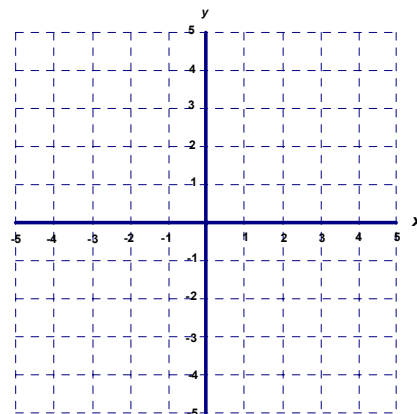
**4**      $y = 2(x - 1)$



**5**      $y = -x + 1$

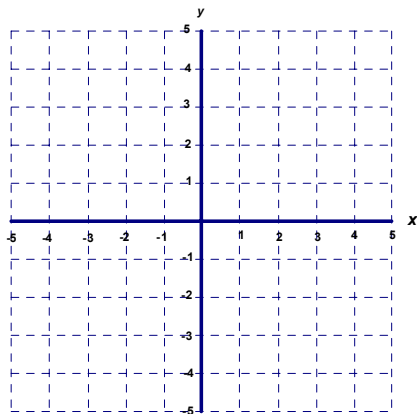


**6**      $y = -(x + 1)$

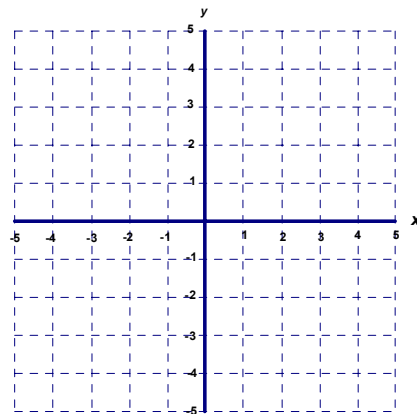




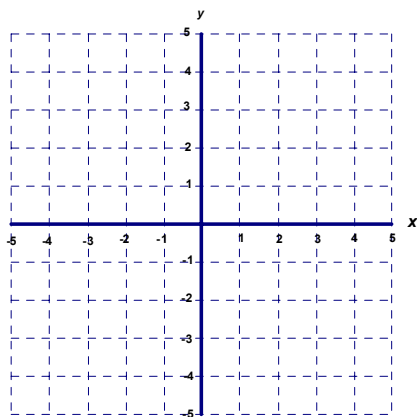
7  $y = -2x$



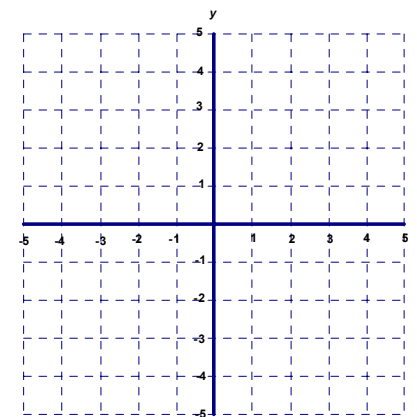
8  $y = 2(x - 2)$



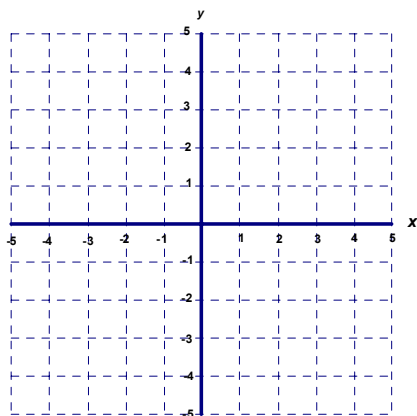
9  $x + y = 2$



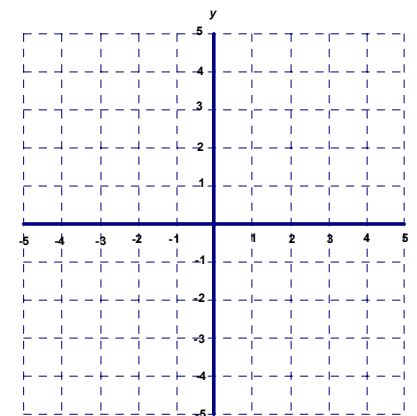
10  $x + y = -3$



11  $x + y = 1$



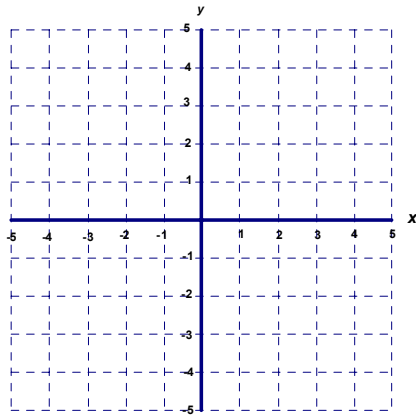
12  $-x + y = 2$



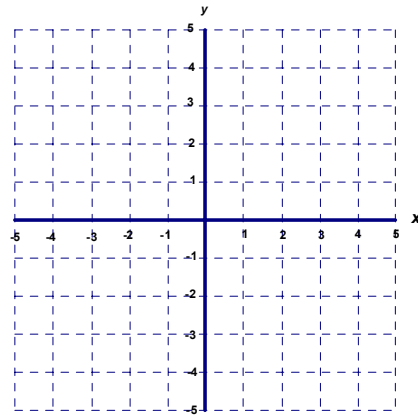


Capricorn 918

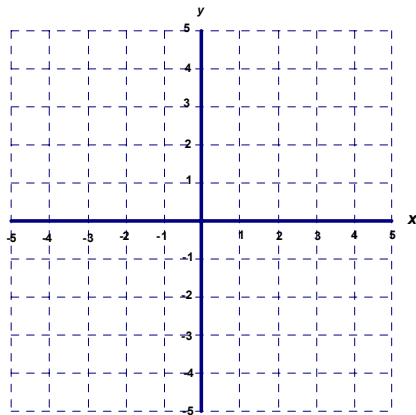
1  $y < \frac{1}{2}x$



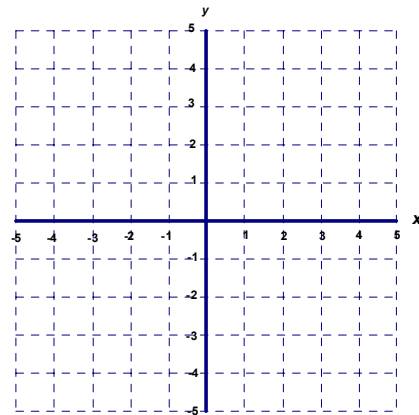
2  $y > 3x - 2$



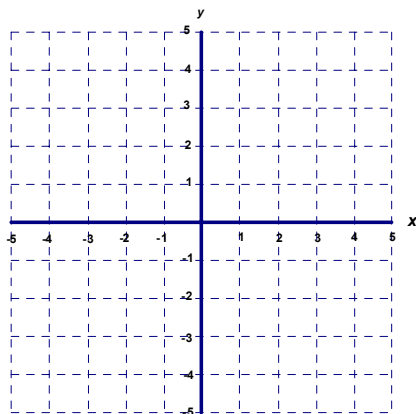
3  $y \leq -x + 2$



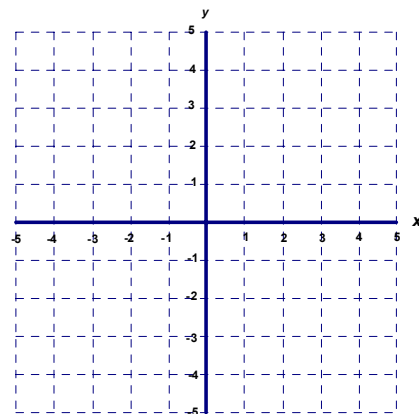
4  $y \geq 3 - 2x$



5  $y > \frac{x}{2} + 3$

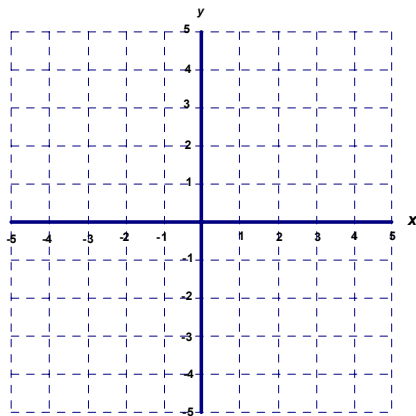


6  $y \leq x^2 + 2$

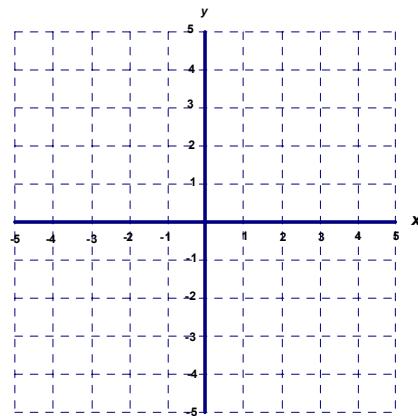




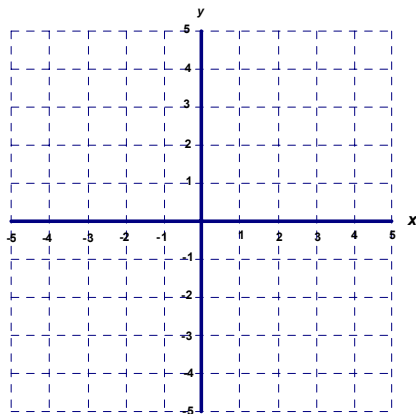
7  $x + y > 2$



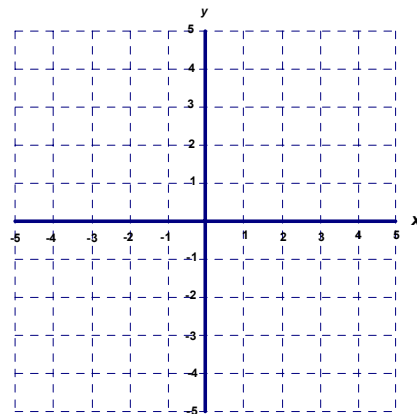
8  $x + y < -4$



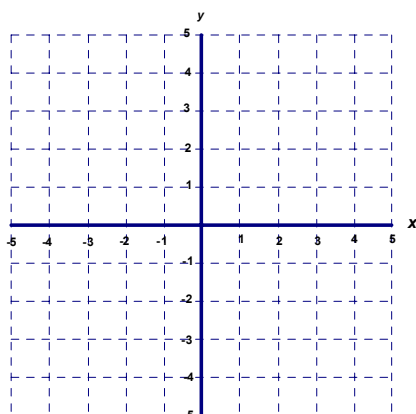
9  $x + y < -1$  and  $y > x^2 - 2$



10  $y - x \leq 4$  and  $y > x^2$



11  $y > 2x - 4$  and  $y < -x^2$



12  $y > x^2 + 1$  and  $x + y \leq 2$

