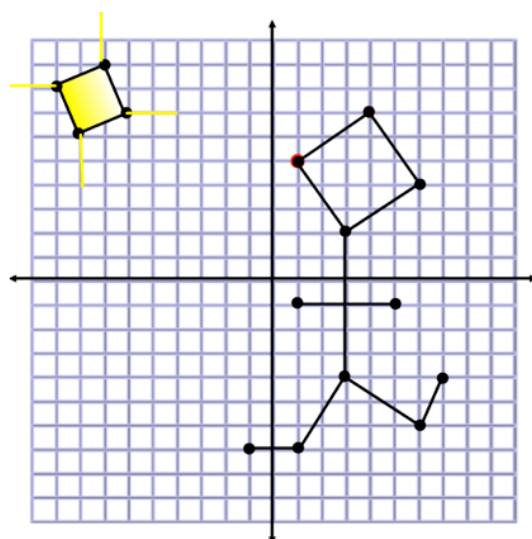


Directions in Another Language Project

In this project you will be creating a picture using mathematical directions and linear equations. Your picture must contain **at least 25 different lines**. The picture at right is an example of what I expect...

There are three parts to this project.



Aspect 1: The Design

You will create a design using linear equations. This design will be accurate and neat.

You will need to include:

- Minimum of 25 different lines
- Lines with various slopes (fractional, whole numbers, positive, negative, etc)
- Parallel lines (at least one pair)
- Perpendicular lines (at least one pair)
- Vertical line(s) that go through the point (b,y) (i.e. $x = b$)
- Horizontal line(s) that go through the point (x,a) (i.e. $y = a$)
- Restricted domain and range to limit the lines

Be CREATIVE, but don't do more than you can handle...

Aspect 2: The Poster

I want you to create an AWESOME poster that displays your picture, along with the directions.

This should be very, very neat and easy to see from a distance.

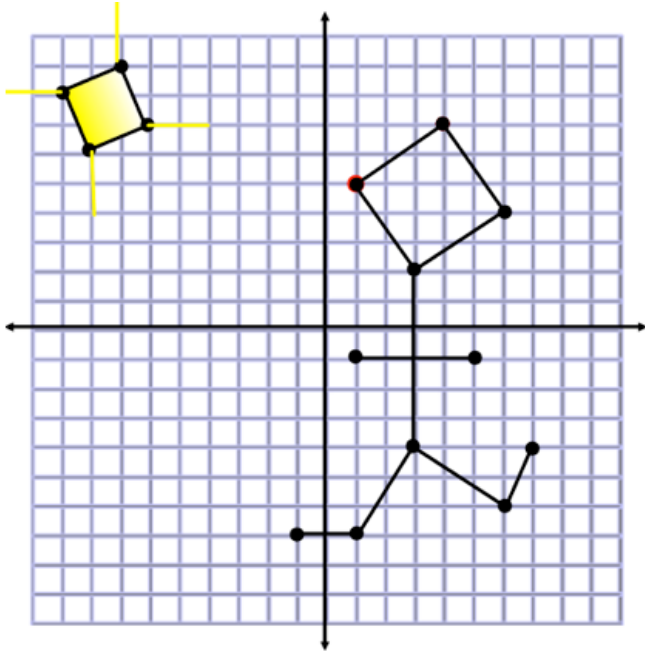
Aspect 3: The Directions

You will write equations for each line shown in the picture. You will also state the domain and range restrictions for each line.

Direction requirements:

- Slope-intercept form $y = mx + b$
- Point-slope form $y - y_1 = m(x - x_1)$
- State the restricted domain
- State the restricted range

Let's create an example of the directions using our picture.



Line 1:

$$y - 5 = \frac{2}{3}(x - 1)$$

$$y = \frac{2}{3}x + \frac{13}{3}$$

$$D: \{x \in \mathbb{R} \mid 1 < x < 4\}$$

$$R: \{y \in \mathbb{R} \mid 5 < y < 7\}$$

$$(1, 5) \quad (4, 7)$$

$$m = \frac{7-5}{4-1} = \frac{2}{3}$$

$$y - 5 = \frac{2}{3}x - \frac{2}{3} + 5$$