

**Algebra**  
**Unit 4 Line Master 4a**

## Flip, Slide, Turn

1. Open the exploration for  $y = 3x + c$ .

a) Look at where  $c$  is in the equation.

Predict how the graph will change when the value of  $c$  is changed.

b) Use the slider to change the value of  $c$ .

How is the graph of  $y = 3x$  being transformed?

c) How are the graph of  $y = 3x$  and the new graph alike?

How are they different?

Reference the slopes and  $y$ -intercepts of the graphs.

d) The graph  $y = 5x$  is translated down 6 units.

Predict the equation of the resulting graph. Check your prediction.

e) The graph of  $y = -7x$  is transformed to the graph of  $y = -7x - 3$ .

Describe the transformation that was applied.

**Algebra**  
**Unit 4 Line Master 4b****Flip, Slide, Turn (cont'd)**

2. Open the exploration for  $y = 3(x - c)$ .

a) Look at where  $c$  is in the equation.

Predict how the graph will change when the value of  $c$  is changed.

b) Use the slider to change the value of  $c$ .

How is the graph of  $y = 3x$  being transformed?

c) How are the graph of  $y = 3x$  and the new graph alike?

How are they different?

Reference the slopes and  $y$ -intercepts of the graphs.

d) Does the value of  $c$ , alone, tell you the location of the new  $y$ -intercept?

Why or why not?

e) The graph  $y = 5x$  is translated left 6 units.

Predict the equation of the resulting graph. Check your prediction.

f) The graph of  $y = -2x$  is transformed to the graph of  $y = -2(x - 4)$ .

Describe the transformation that could have been applied.

**Algebra**  
**Unit 4 Line Master 4c**

## Flip, Slide, Turn (cont'd)

3. Open the exploration for  $y = -ax$ .

- a) What is the relationship between the lines? Do you think this relationship will change or stay the same as the value of  $a$  is changed?
  
  
  
  
  
  
  
  
  
  
- b) Use the slider to change the value of  $a$ .  
How is the graph of  $y = ax$  being transformed?
  
  
  
  
  
  
  
  
  
  
- c) How are the graph of  $y = ax$  and the new graph alike?  
How are they different?  
Reference the slopes and  $y$ -intercepts of the graphs.
  
  
  
  
  
  
  
  
  
  
- d) The graph  $y = -10x$  is reflected in the  $y$ -axis.  
Predict the equation of the resulting graph. Check your prediction.
  
  
  
  
  
  
  
  
  
  
- e) The graph of  $y = 2x + 3$  is transformed to the graph of  $y = -2x + 3$ .  
Describe the transformation that could have been applied.

**Algebra**  
**Unit 4 Line Master 4d****Flip, Slide, Turn (cont'd)**

4. Open the exploration for  $y = -\frac{1}{a}x$ .

a) What is the relationship between the lines? Do you think this relationship will change or stay the same as the value of  $a$  is changed?

b) Use the slider to change the value of  $a$ .  
How is the graph of  $y = ax$  being transformed?

c) How are the graph of  $y = ax$  and the new graph alike?  
How are they different?  
Reference the slopes and  $y$ -intercepts of the graphs.

d) Change the equations to  $y = ax + 2$  and  $y = -\frac{1}{a}x + 2$ .  
Then move the slider to change the value of  $a$ .  
Is the graph still transformed in the same way?

e) The graph  $y = -5x$  is rotated  $90^\circ$  clockwise about the origin.  
Predict the equation of the resulting graph. Check your prediction.

f) The graph of  $y = 6x$  is transformed to the graph of  $y = -\frac{1}{6}x$ .  
Describe the transformation that could have been applied.