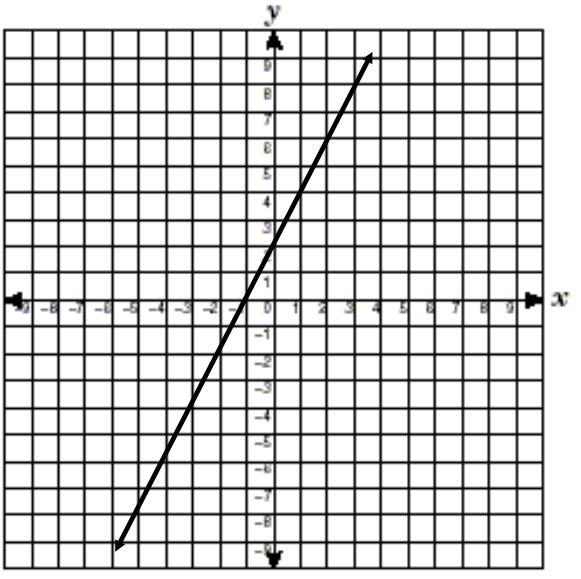
7.5 Dilating Lines

Objective: Dilate a line. Duh.

How to Dilate a Line

Line y = 2x + 2 is transformed by a dilation with a scale factor of 3 and centered at the origin. What is the equation of the line after the dilation?



Step 1) Draw the given Line

Step 2) Dilate ANY point on the line from the center of dilation

Point

Step 3) Write the equation of the new line

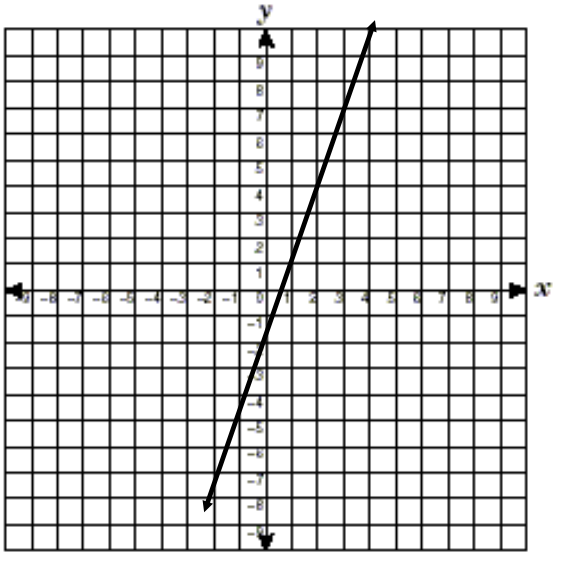
y = mx + b

( ) = ( )( ) + b

m =
x =
y =

Solve for me

Line y = 3x - 2 is transformed by a dilation with a scale factor of 2 and centered at the origin. What is the equation of the line after the dilation?



Step 1) Draw the given Line

Step 2) Dilate ANY point on the line from the center of dilation

Point

Step 3) Write the equation of the new line

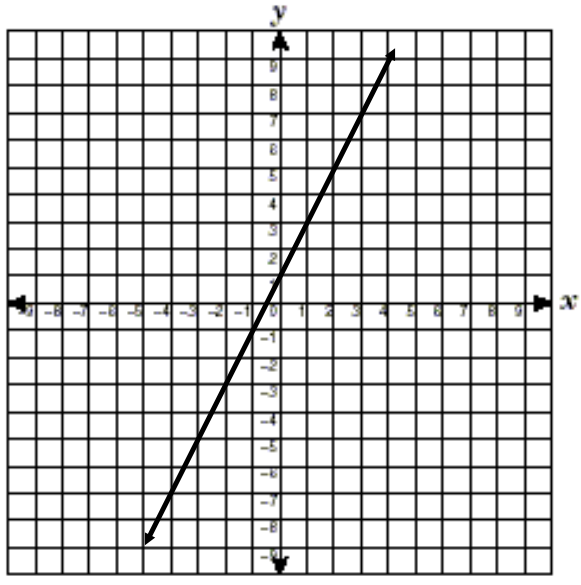
y = mx + b

( ) = ( )( ) + b

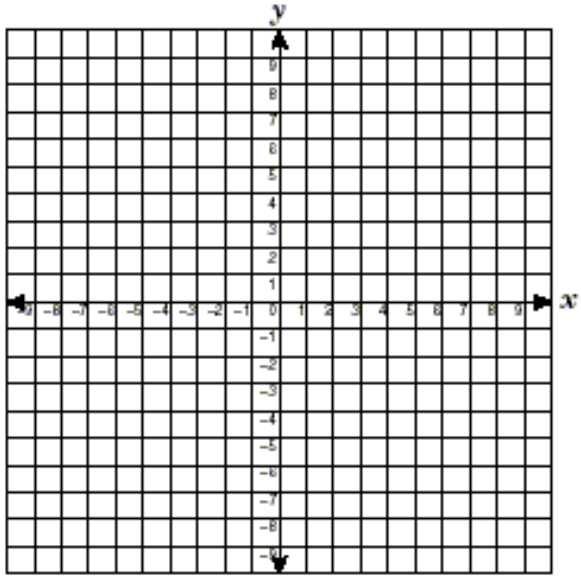
m =
x =
y =

Solve for me

Line y = 2x + 1 is transformed by a dilation with a scale factor of 2 and centered at the (3,2). What is the equation of the lines image?



Line 2x - 3y = 6 is transformed by a dilation with a scale factor of 2. and centered at P(3,0). What is the equation of the line after the dilation?



Interesting Fact

Independent Practice

Step 1) Draw the given Line

Step 2) Dilate ANY point on the line from the center of dilation

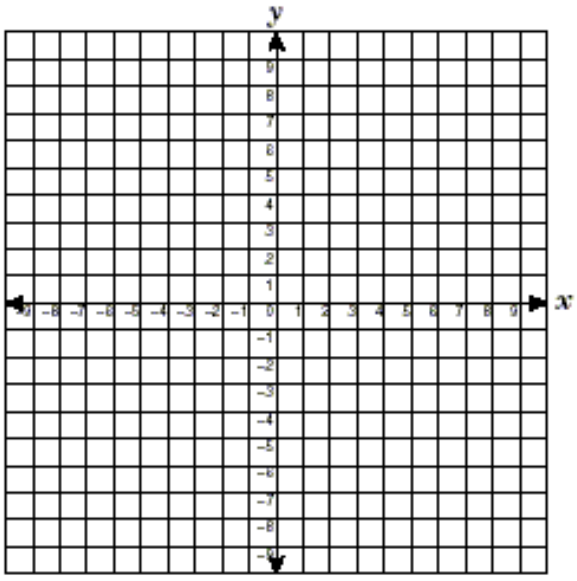
Point

Step 3) Write the equation of the new line

m =
x =
y =

$y = mx + b$

( ) = ( )( ) + b



Line $y = \frac{1}{2}x + 2$ is transformed by a dilation with a scale factor of 3 and centered at the (3,1). What is the equation of the lines image?

Step 1) Draw the given Line

Step 2) Dilate ANY point on the line from the center of dilation

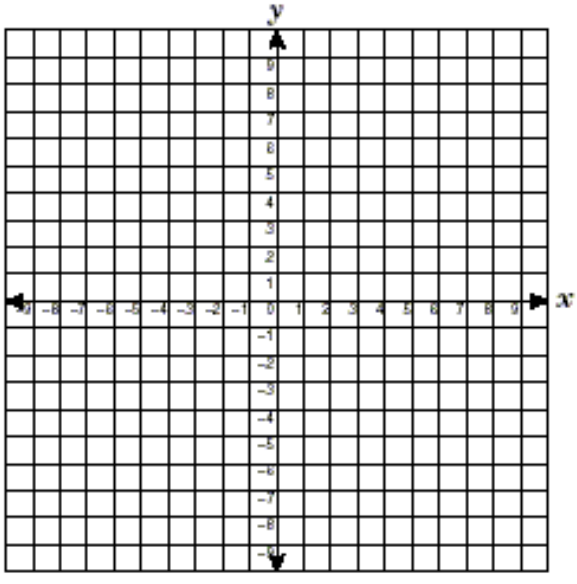
Point

Step 3) Write the equation of the new line

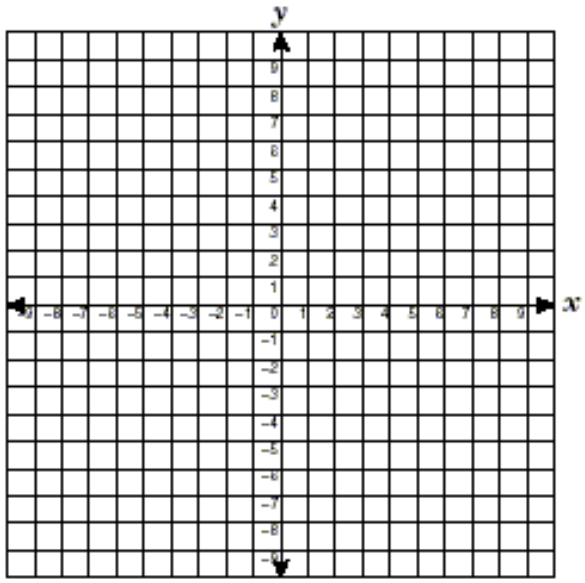
m =
x =
y =

$y = mx + b$

( ) = ( )( ) + b



Line 2x + 3y = -6 is transformed by a dilation with a scale factor of 3 and centered at the (-3,-1). What is the equation of the line after the dilation?



Line 5x - 2y = 4 is transformed by a dilation with a scale factor of 2 and centered at the (2,3). What is the equation of the line after the dilation?