Name _____ Date _____
Mr. Schlansky Geometry

Line Dilations Centered at the Origin

1. The line $y = 2x - 6$ is dilated by a scale factor of -3 and centered at the origin. Write an equation of the line that represents the image of the line after the dilation.

2. The line $y = \frac{1}{2}x - 2$ is dilated by a scale factor of $\frac{5}{2}$ and centered at the origin. Write an equation that represents the image of the line after the dilation.

3. The line $y = 4x$ is dilated by a scale factor of $\frac{1}{2}$ and centered at the origin. Write an equation that represents the image of the line after the dilation.

4. The line $y = -2x + 4$ is dilated by a scale factor of $\frac{5}{2}$ and centered at the origin. Write an equation that represents the image of the line after the dilation.

5. The line $y = -5x - 1$ is dilated by a scale factor of 2 and centered at the origin. Write an equation that represents the image of the line after the dilation.

6. The line $y = 2x - 4$ is dilated by a scale factor of $\frac{3}{2}$ and centered at the origin. Which equation represents the image of the line after the dilation?

1) $y = 2x - 4$
2) $y = 2x - 6$
3) $y = 3x - 4$
4) $y = 3x - 6$

7. The equation of line *h* is $2x + y = 1$. Line *m* is the image of line *h* after a dilation of scale factor 4 with respect to the origin. What is the equation of the line *m*?

1) $y = -2x + 1$
2) $y = -2x + 4$
3) $y = 2x + 4$
4) $y = 2x + 1$

8. The equation of line *a* is given by the equation $y - 3x = 4$. Line *b* is the image of line *a* after a dilation with a scale factor of 3 with respect to the origin. Write an equation for line *b*.

9. Line ℓ is mapped onto line *m* by a dilation centered at the origin with a scale factor of 2. The equation of line ℓ is $3x - y = 4$. Determine and state an equation for line *m*.

10. Line $y - 4 = 2(x - 2)$ is transformed by a dilation with a scale factor of 4 centered at the origin. What is the equation of the line's image?