



Name _____
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Date _____
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.
 - 1) $y = 6x - 6$
 - 2) $y = 6x - 18$
 - 3) $y = 2x - 6$
 - 4) $y = 2x - 18$
2. The line $y = \frac{1}{2}x - 2$ is dilated by a scale factor of 5 and centered at the origin. Write an equation that represents the image of the line after the dilation.
 - 1) $y = \frac{1}{2}x - 2$
 - 2) $y = \frac{1}{2}x - 10$
 - 3) $y = \frac{5}{2}x - 2$
 - 4) $y = \frac{5}{2}x - 10$
3. The line $y = 4x - 1$ 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.
 - 1) $y = 2x - \frac{1}{2}$
 - 2) $y = 2x - 1$
 - 3) $y = 4x - \frac{1}{2}$
 - 4) $y = 4x - 1$
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.
 - 1) $y = -2x + 4$
 - 2) $y = -2x + 10$
 - 3) $y = -5x + 4$
 - 4) $y = -5x + 10$

5. 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) $y = 3x - 6$

6. 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) $y = 2x + 1$

7. 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 .

8. 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 .

9. 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?