

Aim: How can we dilate figures on the coordinate plane?

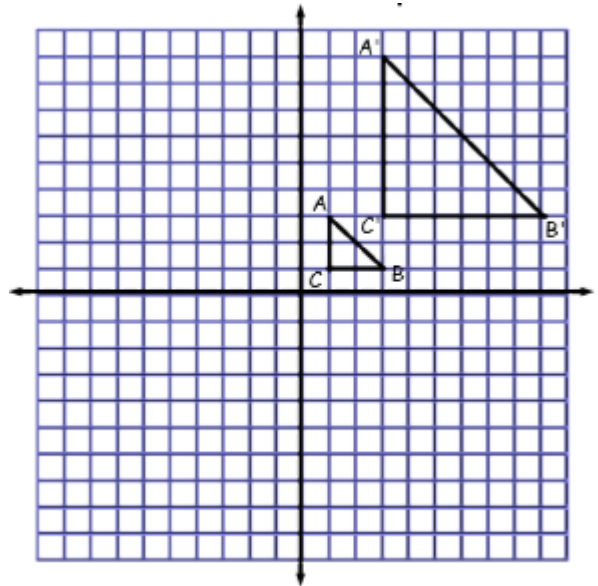


Do Now: $\triangle A'B'C'$ is the image of $\triangle ABC$ after a dilation of scale factor 3 centered at the origin.

1. What are the coordinates of the points below?

A: B: C:

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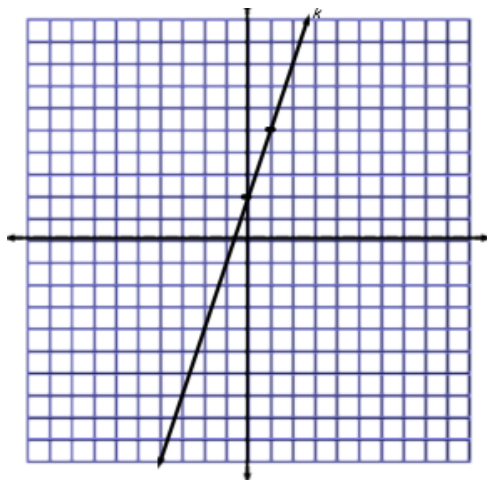
2. What do you notice about the coordinates?

1. What is the equation of the line that contains AB?

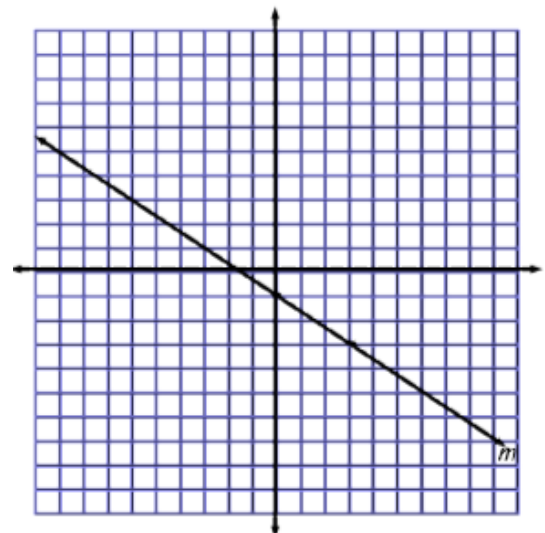
What is the equation of the line that contains A'B'?

How do the equations of the lines compare?

2. What is the equation of line k after D_3 centered at the origin?



3. What is the equation of line m after D_2 centered at the origin?



4. What is the equation of the line containing points A' and B' if the line containing points $A(4, 6)$ and $B(-2, 3)$ is dilated by a scale factor of 3 centered at the origin?

5. The triangle ABC has coordinates $A = (6, 1)$, $B = (12, 4)$, and $C = (-6, 2)$. The triangle is dilated from the origin by a scale factor $r = 1/2$. Identify the coordinates of the dilated triangle $A'B'C'$.

6. Figure $DEFG$ has coordinates $D = (1, 1)$, $E = (7, 3)$, $F = (5, -4)$, and $G = (-1, -4)$. The figure is dilated from the origin by scale factor $r = 7$. Identify the coordinates of the dilated figure $D'E'F'G'$.

7. In the coordinate plane, line m has a slope of 2 and a y-intercept of $(0, -5)$. Line n is the result of dilating line m by a scale factor of 4 with a center of $(0,0)$. What are the slope and y-intercept of line n ?

- a. Line n has a slope of $1/2$ and a y-intercept of $(0, -3)$.
- b. Line n has a slope of 2 and a y-intercept of $(0, -5)$.
- c. Line n has a slope of 2 and a y-intercept of $(0, -20)$.
- d. Line n has a slope of 8 and a y-intercept of $(0, 20)$.

8. Line segment CD with endpoints $(-5, 16)$ and $D(-20, -4)$ lies in the coordinate plane. The segment will be dilated with a scale factor of 2 and a center at the origin to create $C'D'$. What will be the equation of the line $C'D'$?

9. Line segment CD with endpoints $(-4, 16)$ and $D(-20, 4)$ lies in the coordinate plane. The segment will be dilated with a scale factor of $\frac{1}{4}$ and a center at the origin to create $C'D'$. What is the equation of the line containing $C'D'$?

10. In the coordinate plane, line m has a slope of $\frac{1}{4}$ and a y-intercept of $(0, -3)$. Line n is the result of dilating line m by a scale factor of 2 with a center of $(0, 0)$. What are the slope and y-intercept of line n ?

- a. Line n has a slope of $\frac{1}{4}$ and a y-intercept of $(0, -3)$.
- b. Line n has a slope of $\frac{1}{4}$ and a y-intercept of $(0, -6)$.
- c. Line n has a slope of $\frac{3}{4}$ and a y-intercept of $(0, -2)$.
- d. Line n has a slope of 2.25 and a y-intercept of $(0, -6)$.