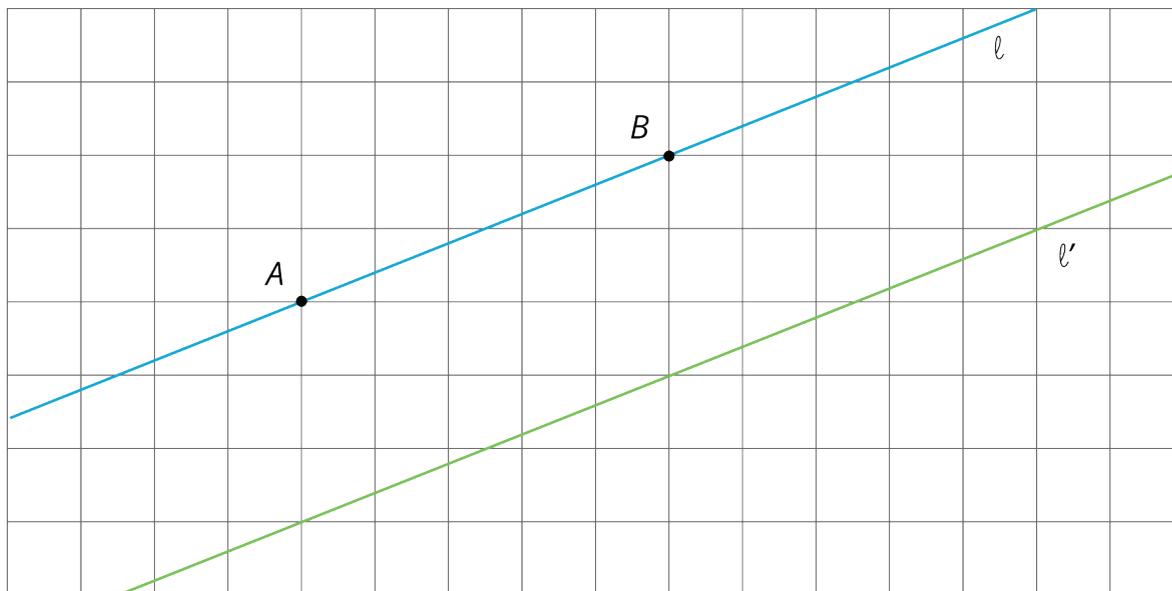


Unit 1 Lesson 9: Moves in Parallel

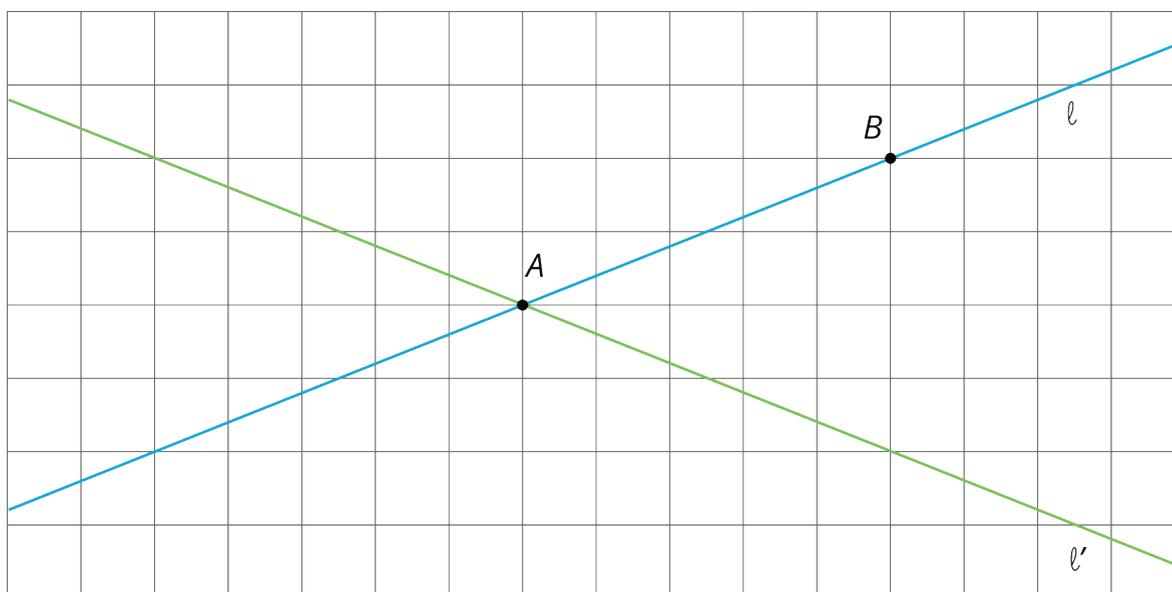
1 Line Moves (Warm up)

Student Task Statement

For each diagram, describe a translation, rotation, or reflection that takes line ℓ to line ℓ' . Then plot and label A' and B' , the images of A and B .



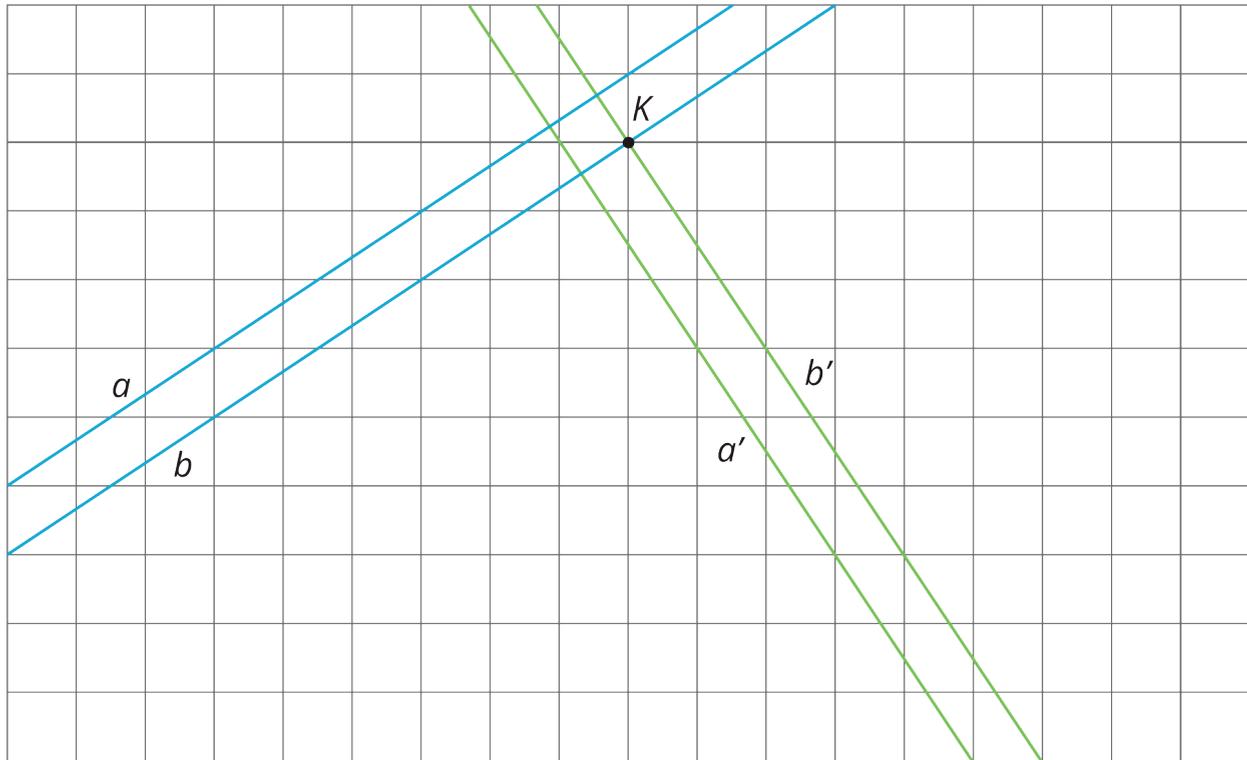
1.



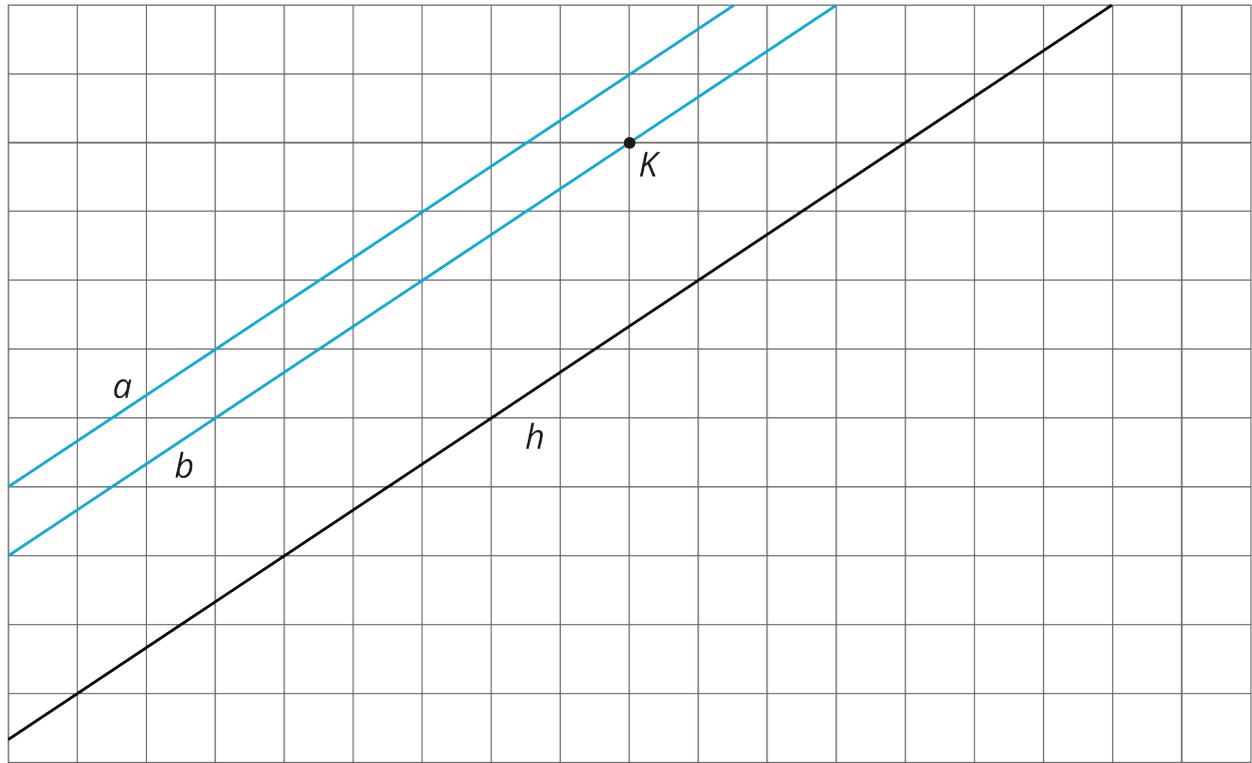
2.

2 Parallel Lines

Images for Launch



Student Task Statement



Use a piece of tracing paper to trace lines a and b and point K . Then use that tracing paper to draw the images of the lines under the three different transformations listed.

As you perform each transformation, think about the question:

What is the image of two parallel lines under a rigid transformation?

1. Translate lines a and b 3 units up and 2 units to the right.
 - a. What do you notice about the changes that occur to lines a and b after the translation?
 - b. What is the same in the original and the image?

2. Rotate lines a and b counterclockwise 180 degrees using K as the center of rotation.
 - a. What do you notice about the changes that occur to lines a and b after the rotation?
 - b. What is the same in the original and the image?
3. Reflect lines a and b across line h .
 - a. What do you notice about the changes that occur to lines a and b after the reflection?
 - b. What is the same in the original and the image?

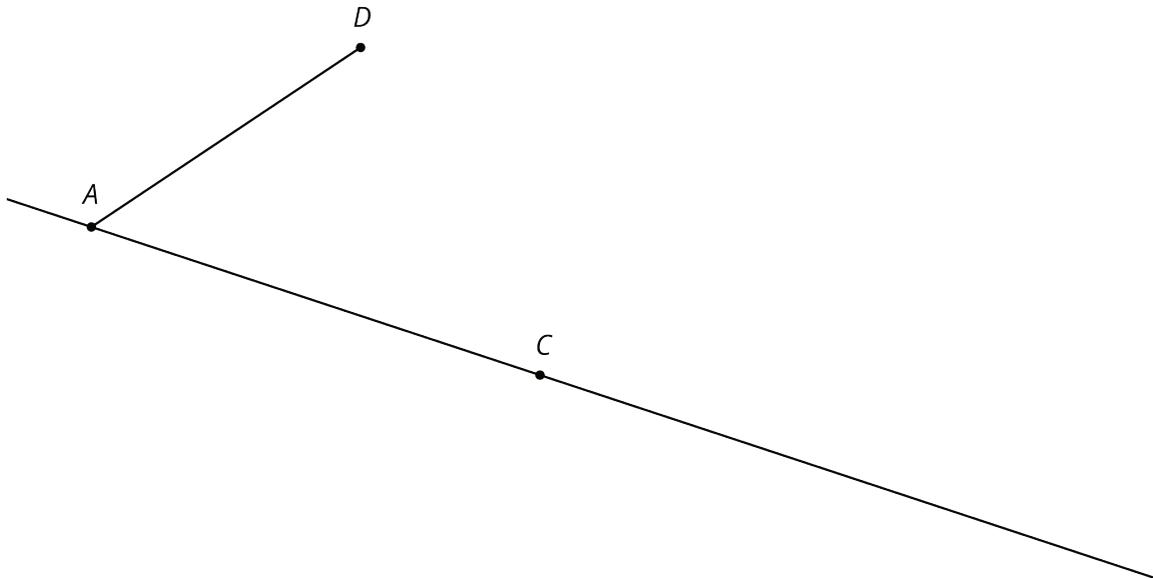
3 Let's Do Some 180's

Student Task Statement

1. The diagram shows a line with points labeled A , C , D , and B .
 - a. On the diagram, draw the image of the line and points A , C , and B after the line has been rotated 180 degrees around point D .
 - b. Label the images of the points A' , B' , and C' .
 - c. What is the order of all seven points? Explain or show your reasoning.



2. The diagram shows a line with points A and C on the line and a segment AD where D is not on the line.
 - a. Rotate the figure 180 degrees about point C . Label the image of A as A' and the image of D as D' .
 - b. What do you know about the relationship between angle CAD and angle $CA'D'$? Explain or show your reasoning.



3. The diagram shows two lines ℓ and m that intersect at a point O with point A on ℓ and point D on m .
- Rotate the figure 180 degrees around O . Label the image of A as A' and the image of D as D' .
 - What do you know about the relationship between the angles in the figure? Explain or show your reasoning.

