### Lesson 9 Practice Problems

* 1. Draw parallel lines $AB$ and $CD$.
	2. Pick any point $E$. Rotate $AB$ 90 degrees clockwise around $E$.
	3. Rotate line $CD$ 90 degrees clockwise around $E$.
	4. What do you notice?
1. Use the diagram to find the measures of each angle. Explain your reasoning.
	1. $m∠ABC$
	2. $m∠EBD$
	3. $m∠ABE$
* 
1. Points $P$ and $Q$ are plotted on a line.
* 
	1. Find a point $R$ so that a 180-degree rotation with center $R$ sends $P$ to $Q$ and $Q$ to $P$.
	2. Is there more than one point $R$ that works for part a?
1. In the picture triangle $A^{′}B^{′}C^{′}$ is an image of triangle $ABC$ after a rotation. The center of rotation is $D$.
* 
	1. What is the length of side $B^{′}C^{′}$? Explain how you know.
	2. What is the measure of angle $B$? Explain how you know.
	3. What is the measure of angle $C$? Explain how you know.
* (From Unit 1, Lesson 7.)
1. The point $\left(-4,1\right)$ is rotated 180 degrees counterclockwise using center $\left(0,0\right)$. What are the coordinates of the image?
	1. $\left(-1,-4\right)$
	2. $\left(-1,4\right)$
	3. $\left(4,1\right)$
	4. $\left(4,-1\right)$
* (From Unit 1, Lesson 6.)



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