### Lesson 13 Practice Problems

1. Here are 2 polygons:
* Select **all** sequences of translations, rotations, and reflections below that would take polygon $P$ to polygon $Q$.
* 
	1. Rotate $180^{∘}$ around point $A$.
	2. Rotate $60^{∘}$ counterclockwise around point $A$ and then reflect over the line $FA$.
	3. Translate so that $A$ is taken to $J$. Then reflect over line $BA$.
	4. Reflect over line $BA$ and then translate by directed line segment $BA$.
	5. Reflect over the line $BA$ and then rotate $60^{∘}$ counterclockwise around point $A$.
1. The semaphore alphabet is a way to use flags to signal messages. Here's how to signal the letter Q. Describe a transformation that would take the left hand flag to the right hand flag.
* Q
* 
*
1. Match the directed line segment with the image of Polygon $P$ being transformed to Polygon $Q$ by translation by that directed line segment.
* Translation 1
* 
* Translation 2
* 
* Translation 3
* 
* Translation 4
* 
	1. 
	2. 
	3. 
	4. 
	5. Translation 1
	6. Translation 2
	7. Translation 3
	8. Translation 4
* (From Unit 1, Lesson 12.)
1. Draw the image of quadrilateral $ABCD$ when translated by the directed line segment $v$. Label the image of $A$ as $A^{′}$, the image of $B$ as $B^{′}$, the image of $C$ as $C^{′}$, and the image of $D$ as $D^{′}$.
* 
* (From Unit 1, Lesson 12.)
1. Here is a line $ℓ$.
* Plot 2 points, $A$ and $B$, which stay in the same place when they are reflected over $ℓ$. Plot 2 other points, $C$ and $D$, which move when they are reflected over $ℓ$.
* 
* (From Unit 1, Lesson 11.)
1. Here are 3 points in the plane. Select **all** the straightedge and compass constructions needed to locate the point that is the same distance from all 3 points.
* 
	1. Construct the bisector of angle $CAB$.
	2. Construct the bisector of angle $CBA$.
	3. Construct the perpendicular bisector of $BC$.
	4. Construct the perpendicular bisector of $AB$.
	5. Construct a line perpendicular to $AB$ through point $C$.
	6. Construct a line perpendicular to $BC$ through point $A$.
* (From Unit 1, Lesson 9.)
1. This straightedge and compass construction shows quadrilateral $ABCD$. Is $ABCD$ a rhombus? Explain how you know.
* 
* (From Unit 1, Lesson 7.)



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