Complete the outline as you view Video Lecture 8.3. Pause the video as needed to fill in the blanks. Then press Play to continue. Also, circle your answer to each numbered exercise.

**Objective 1  Find Reflection Images of Figures**

**Reflection Across a Line**

Reflection across a line \( r \), called the line of reflection, is a transformation with these two properties:

- If \( A \) is on \( r \), then \( A' = \) ________.
- If \( B \) is not on \( r \), then \( r \) is the perpendicular bisector of ________.

A reflection across a line is an isometry.

**Work Video Exercise 1 with me.**

The point is reflected across the line indicated. Find the coordinates of the image.

1. \( U (-1,-3) \), reflected across the y-axis.
Section 8.3 Reflections

**Pause and work Video Exercise 2.**
2. Given points $J(1,4)$, $A(3,5)$, and $R(2,1)$, graph $\triangle JAR$ and its reflection image across the line $x = -1$.

![Graph of triangle JAR with line x = -1](image)

**Play and check.**

**Pause and work Video Exercises 3 & 4.**
3. Draw the figure’s reflection image across line $\ell$.

![Reflection image across line ℓ](image)

4. Town officials in Waterville and Drighton plan to construct a water pumping station along the Franklin Canal. The station will provide both towns with water. Where along the canal should the officials build the pumping station to minimize the total length of pipe needed?

![Diagram of Franklin Canal](image)

**Play and check.**
Objective 2  Identify Line Symmetry

Line Symmetry

A plane figure has line symmetry or reflectional symmetry if the figure on one side of the line is the reflection of the figure on the other side of the line. The line of reflection is called a line of symmetry. It divides the plane figure into congruent halves.

Work Video Exercises 5 & 6 with me.

For Exercises 5 and 6, if the figure has line symmetry, sketch the line(s) of symmetry. If the figure has no line symmetry, write “no line symmetry.”

5.

6.