Parabola Construction
ParabolaConstruction.tns

Name _____

Class _____

Problem 1 – Constructing a Parabola

A parabola is a set of all points equidistant from a point (called the focus) and a line (called the directrix). Follow the steps given to create a parabola using the focus and directrix given on page 1.5. Use the definition to explain why each step is needed to construct the parabola.

Step 1 Draw a segment (**MENU > Geometry > Points & Lines > Segment**) from the focus to the point on the directrix.

Step 2 Find the midpoint (**MENU > Geometry > Construction > Midpoint**) of the segment.

Step 3 Construct a perpendicular line (**MENU > Geometry > Construction > Perpendicular**) to the segment you drew in step 1 through the midpoint. Choose the midpoint, then the segment.

Step 4 Construct a perpendicular line to the directrix through the point on the directrix.

Step 5 Find the intersection point (**MENU > Geometry > Points & Lines > Intersection Points**) of the two perpendicular lines.

Step 6 Trace the intersection point as you move the point on the directrix using **Geometry Trace** (**MENU > Trace > Geometry Trace**). Select the point and then grab and drag the point on the directrix.

Extension – Exploring the Parabola

In the extension, you will move the focus and explore the resulting changes in the shape of the parabola. Follow the directions on page 2.1 and then answer the following questions.

1. What happens to the parabola as the focus moves closer to the directrix?

2. What happens to the parabola when the focus is below the directrix?

3. What happens to the parabola if the focus is moved left or right? (Grab the open square at the top of the screen to move the focus left or right)