Folding and Tracing

Short-answer questions about folding and tracing.

Problem   1   *What are the rules for folding and tracing constructions?*

Problem   2   *Use folding and tracing to bisect a given line segment. Explain the steps in your construction.*

Hint: *Fold one endpoint of the segment onto the other. The midpoint is where the fold intersects the segment. (Note that the fold is the perpendicular bisector of the segment.)*

Problem   3   *Given a line segment with a point on it, use folding and tracing to construct a line perpendicular to the segment that passes through the given point. Explain the steps in your construction.*

Hint: *Fold the line onto itself so that the fold goes through the given point. (You may need to extend the segment to see enough of the line.)*

Problem   4   *Use folding and tracing to bisect a given angle. Explain the steps in your construction.*

Hint: *Fold one side of the angle onto the other so that the fold goes through the vertex of the angle.*

Problem   5   *Given a point and line, use folding and tracing to construct a line perpendicular to the given line that passes through the given point. Explain the steps in your construction.*

Hint: *Fold the line onto itself so that the fold goes through the given point.*

Problem 6 *Given a point and line, use folding and tracing to construct a line parallel to the given line that passes through the given point. Explain the steps in your construction.*

Hint: *Construct a perpendicular to a perpendicular as follows: (1) Fold the line onto itself so that the fold goes through the given point. (2) Fold the new fold onto itself so that the fold goes through the given point.*

Problem 7 *Given a length of 1, construct a triangle whose perimeter is a multiple of 6. Explain the steps in your construction.*

Problem 8 *Construct a 30-60-90 right triangle. Explain the steps in your construction.*

Problem 9 *Given a length of 1, construct a triangle with a perimeter of $3 + \sqrt{5}$. Explain the steps in your construction.*