Name _____

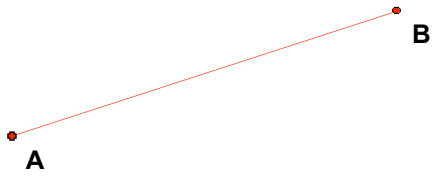
Construction Portfolio: Part 1

This document consists of 13 figures. Each of these figures provides the starting point for a construction using a compass and an (unmarked) straightedge.

- For each figure, carry out the construction indicated. This will give you practice in some of the fundamental constructions in the course.
- Then save the constructions as the first part of your Construction Portfolio. This Portfolio is considered a major assignment, and will be checked later for correctness and completeness.

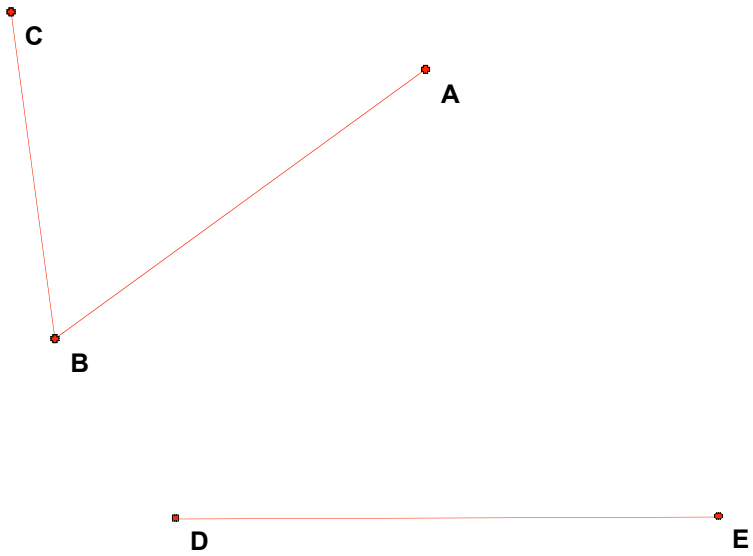
1. Equilateral triangle from a side

Construct a point C so that the triangle ABC is equilateral



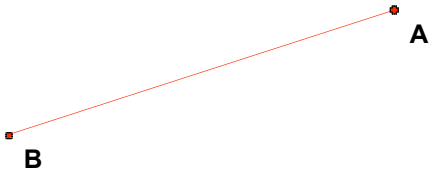
2. *Copying an angle*

Construct a point F so that angle DEF is congruent to angle ABC.



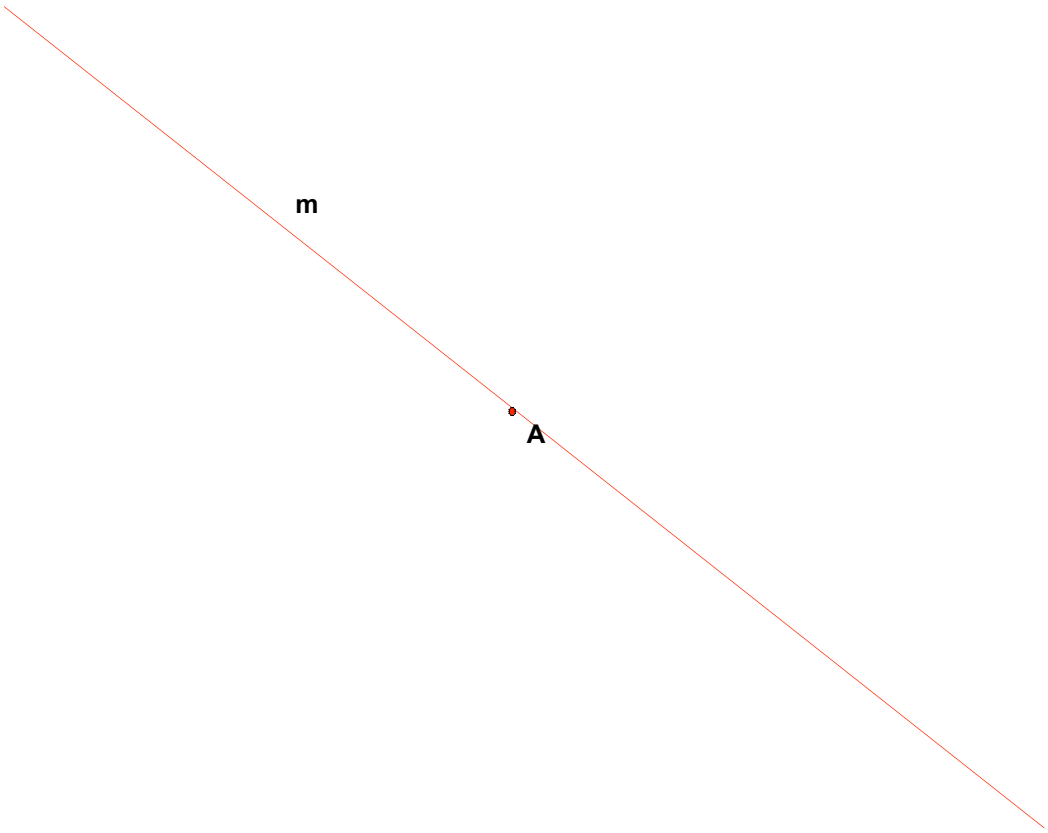
3. Perpendicular bisector of a segment

Construct the perpendicular bisector of segment AB. Also construct the midpoint M of AB.



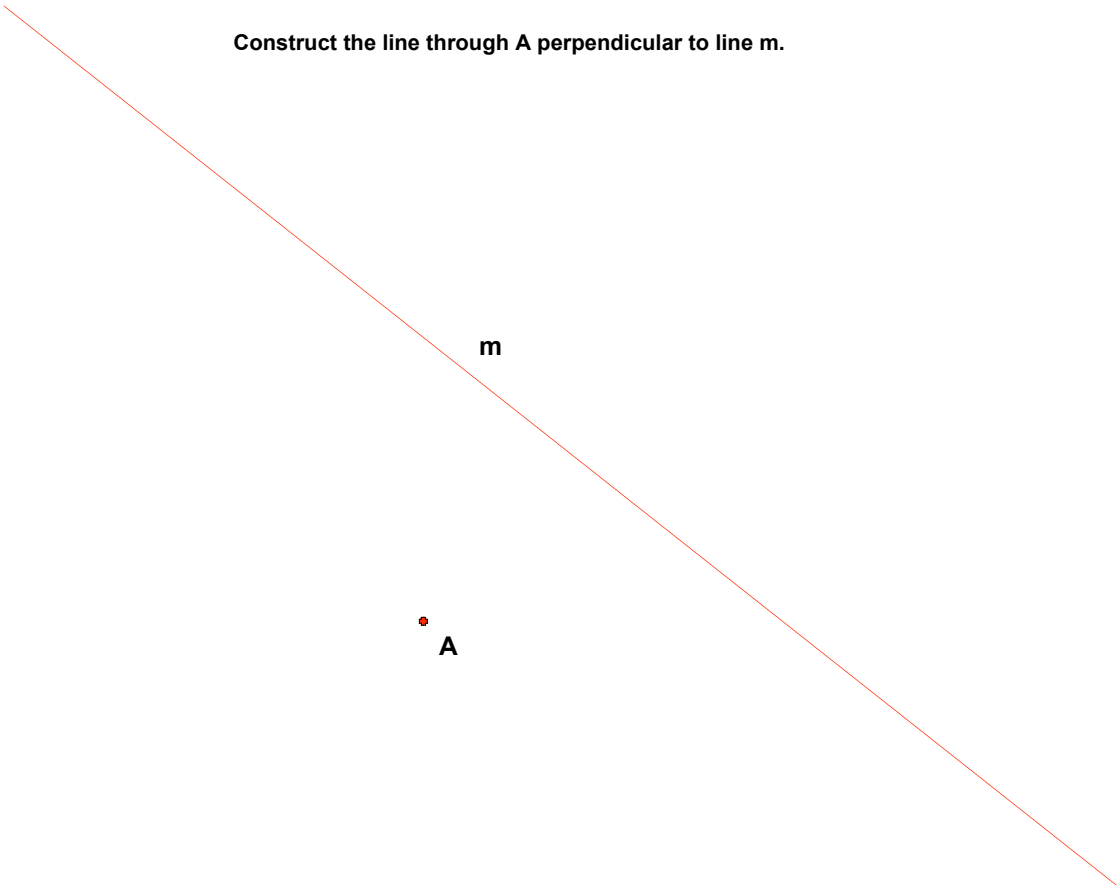
4. Line through a point perpendicular to a given line: point on line

Construct the line through A perpendicular to line m.



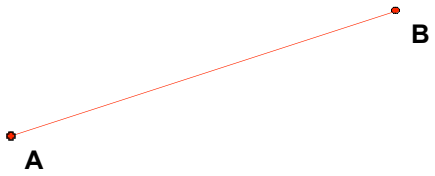
5. Line through a point perpendicular to a given line: point not on line

Construct the line through A perpendicular to line m.



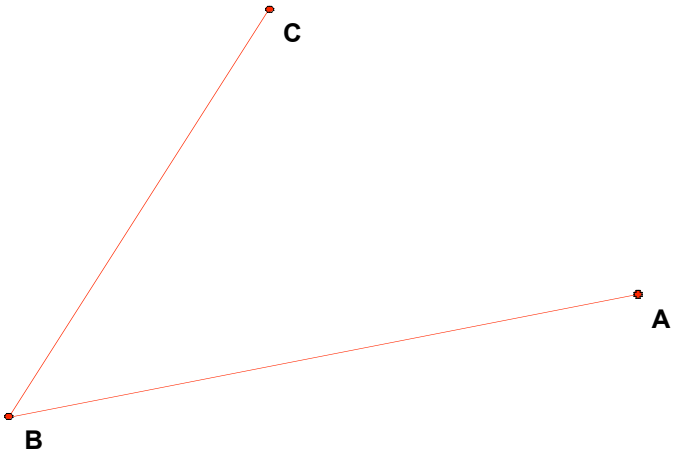
6. *Square from a side*

Construct points C and D so that the quadrilateral ABCD is a square.



7. Angle bisector

Construct the bisector of angle ABC.
Also construct the bisectors of the exterior angles of ABC.

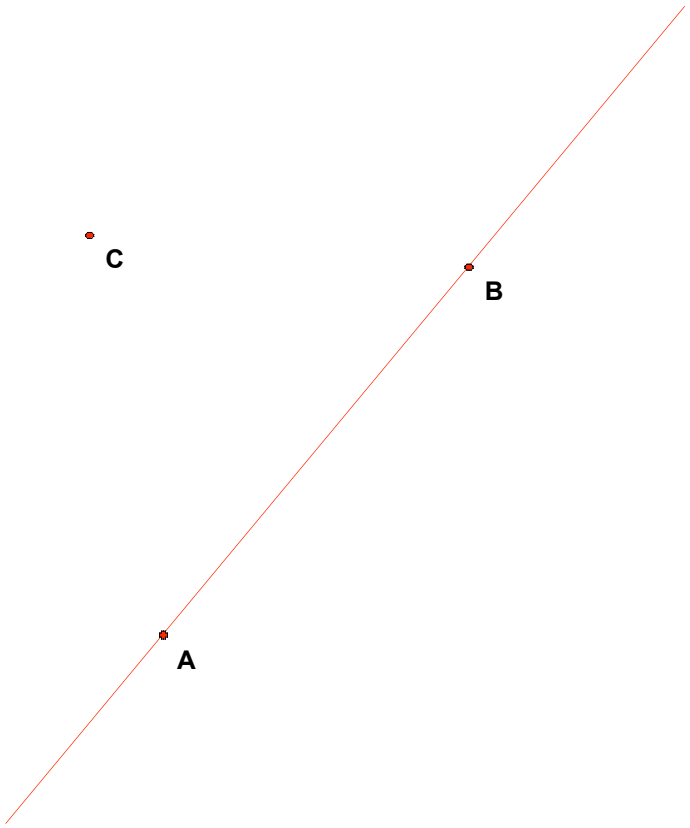


8. Construct a square from the center

Construct a square ABCD with one vertex the given A so that the point O is the center of the square.

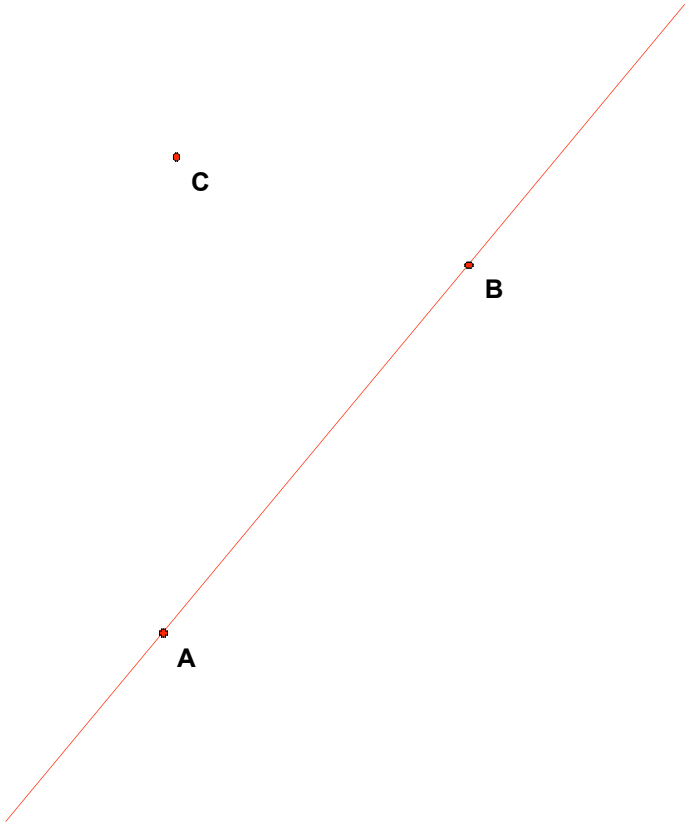
9. Parallel to line through a given point

Construct a line through C parallel to line AB.



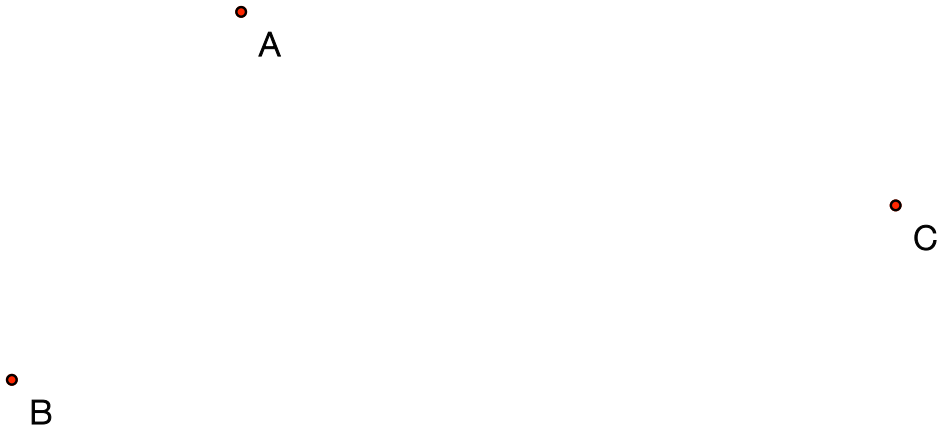
10. Parallelogram from 3 vertices

Construct a point D so that ABCD is a parallelogram.



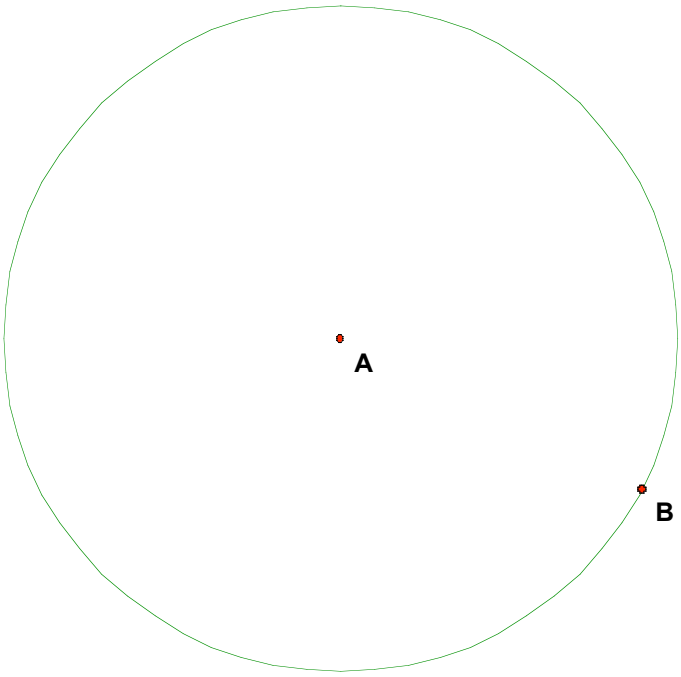
11. Perpendicular Bisectors and Voronoi Regions

Construct the perpendicular bisectors of the sides of triangle ABC. Then shade the 3 Voronoi (Dirichlet) regions a, b, c of points closest to A, closest to B, closest to C.



12. Tangent line to point on circle

Construct the line through B that is tangent to the circle.



13. Circle tangent to line, given center

Construct the circle with center A that is tangent to line m.