Construction Techniques 4: Parallel and Perpendicular Lines

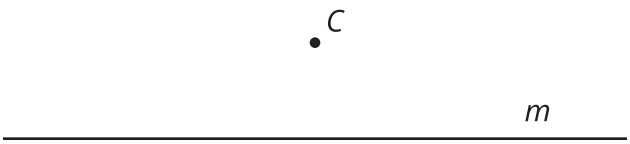
Let's use tools to draw parallel and perpendicular lines precisely.

6.1 Construction Catalog

1. On the paper provided, complete the construction assigned to you.
2. Look at all 4 constructions. What else do you think you can construct using these techniques?

6.2 Standing on the Shoulders of Giants

Here is a line m and a point C *not* on the line. Use straightedge and compass moves to construct a line perpendicular to line m that goes through point C. Be prepared to share your reasoning.



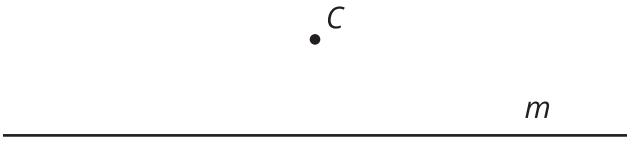
Are you ready for more?

1. The line segment AB has a length of 1 unit. Construct its perpendicular bisector. Mark the point C where this line intersects segment AB. How far is this new point from A?
2. Choose a pair of points to construct a new perpendicular bisector that has not been drawn yet, and label its intersection with segment AB. How far is this new point from A?
3. If you repeat this process of drawing new perpendicular bisectors and considering how far your point is from A, what can you say about all the distances?



6.3 Parallel Constructions Challenge

Here is a line m and a point C not on the line. Use straightedge and compass moves to construct a line parallel to line m that goes through point C.



Lesson 6 Summary

When we write the instructions for a construction, we can use a previous construction as one of the steps. We now know two new constructions that are made up of a sequence of moves:

- Perpendicular lines are lines that meet at a 90 degree angle.
- Parallel lines are lines that don't intersect. One way to make parallel lines is to draw 2 lines perpendicular to the same line.

