

## Desmos Geometry

### Scavenger Hunt

This document is available here: [bit.ly/desmos-geo-hunt](https://bit.ly/desmos-geo-hunt)  
(The Desmos geometry tool is available here: [desmos.com/geometry](https://desmos.com/geometry))

## Overview

Level up your Desmos geometry skills by working through one or more challenges from below. Need some help? Many challenges come with a solution!

## Beginner

*These beginner challenges are appropriate for upper elementary, middle, and high school.*

1. I can create three points and connect them with segments. ([Solution](#))
2. I can create a line, a ray, and a vector. ([Solution](#))
3. I can create a quadrilateral and label the vertices. ([Solution](#))
4. I can create a triangle and measure the side lengths. ([Solution](#))
5. I can create three circles and change the color of each one. ([Solution](#))
6. I can create a triangle, hide the vertices, and move the triangle around by dragging its sides. ([Solution](#))
7. I can open an example construction, make a change, and save it. I can then copy the URL of the saved graph and email it to someone.
8. I can open an example graph and show the hidden objects.
9. Given a line segment, I can construct its midpoint. ([Solution](#))
10. Given a line and any point on it, I can construct a perpendicular line through the given point. ([Solution](#))
11. Given a line and any point not on it, I can construct a perpendicular line through the given point. ([Solution](#))
12. Given a line and any point not on it, I can construct a parallel line through the given point. ([Solution](#))
13. I can define a rotation and use it to construct a regular octagon. ([Solution](#))

## Intermediate

*Some of these intermediate challenges require mathematics found in high school courses.*

1. Given two intersecting lines, I can create a circle centered at the point of intersection. ([Solution](#))
2. Given a line segment, I can construct a perpendicular bisector. ([Solution](#))
3. Given a segment, I can construct a congruent segment. ([Solution](#))
4. Given a segment, I can construct an equilateral triangle. ([Solution](#))
5. Given a segment, I can construct a right triangle and measure its angles. ([Solution](#))
6. Given a segment, I can construct an isosceles triangle that is not equilateral. ([Solution](#))
7. Given a segment, I can construct a square. ([Solution](#))
8. Given a triangle, I can construct the centroid (the intersection of the three medians of the triangle). ([Solution](#))
9. Given a triangle, I can construct the orthocenter (the intersection of the three altitudes of the triangle). ([Solution](#))
10. Given a triangle, I can construct the circumcenter (the intersection of the three perpendicular bisectors of the triangle). ([Solution](#))
11. Given an angle, I can construct a congruent angle. ([Solution](#))
12. Given a segment, I can construct a square without using the perpendicular tool. ([Solution](#))
13. I can use the transformation tools to construct a self-similar figure. ([Example](#))

## Advanced

*Many of these advanced challenges require mathematics found in high school courses.*

1. Given a circle, I can construct an equilateral triangle inscribed in the given circle. ([Solution](#))
2. Given a circle, I can construct a square inscribed in the given circle. ([Solution](#))
3. Given a circle, I can construct a regular hexagon inscribed in the given circle. ([Solution](#))
4. Given a line segment, I can divide it into 3 congruent segments. ([Solution](#))
5. Given a line segment, I can divide it into 5 congruent segments. ([Solution](#))
6. Given a triangle, I can circumscribe a circle around the given triangle. ([Solution](#))
7. Given a triangle, I can inscribe a circle inside the given triangle.
8. Given a segment, I can construct a regular octagon with one side being the given segment.
9. Given a circle, I can construct an inscribed regular octagon. ([Solution](#))
10. Given a circle, I can construct a line tangent to the given circle. ([Solution](#))
11. Given a circle, I can construct its center point. ([Solution](#))
12. Given a circle, I can construct an inscribed regular pentagon.
13. **Mini-Project:** I can use the transformation tools to create geometric art. ([Example 1](#), [Example 2](#), [Example 3](#))