

Geometry CC - Unit 2

Lesson 2: Constructing an Equilateral Triangle

MI L1

Homework: Finish CW Packet 2.2

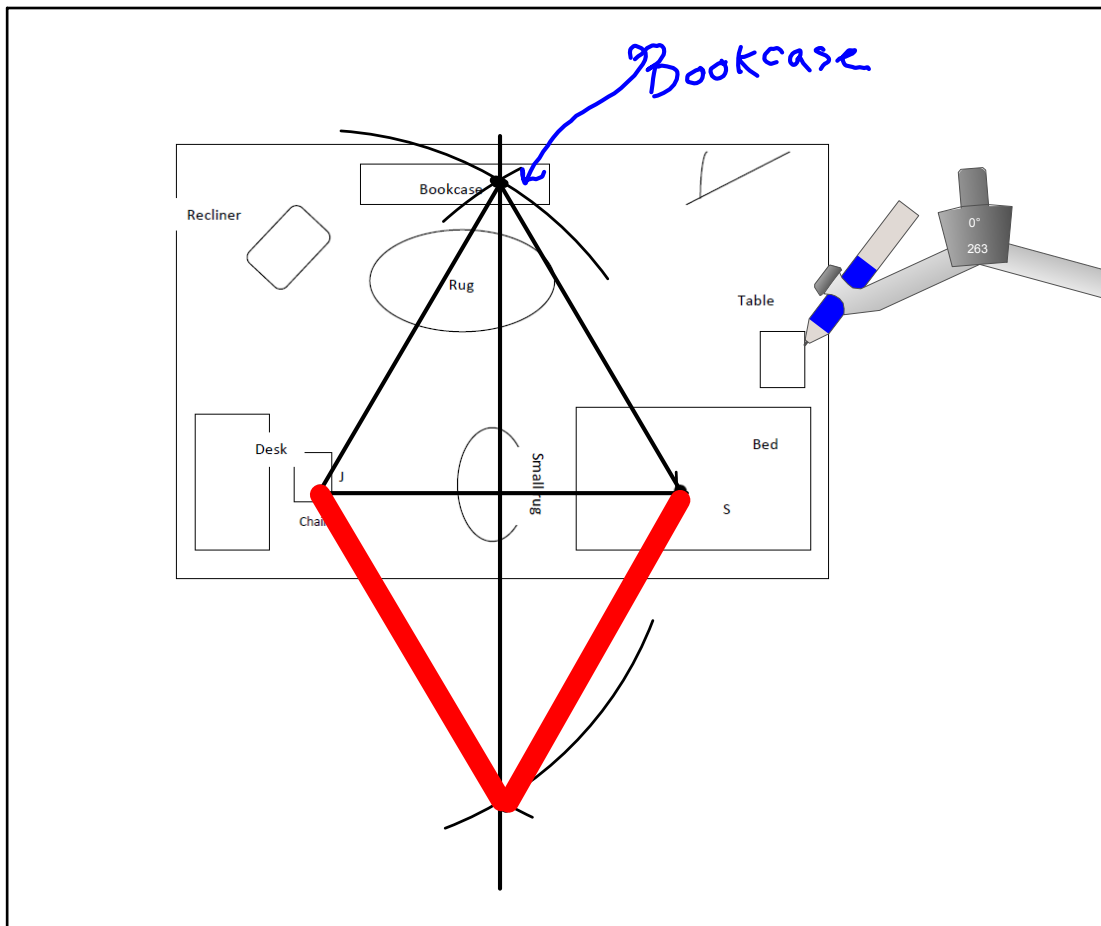
Example 1: Sitting Cats

You will need a compass and a straightedge.



Margie has three cats. She has heard that cats in a room position themselves at equal distances from one another and wants to test that theory. Margie notices that Simon, her tabby cat, is in the center of her bed (at **S**), while JoJo, her Siamese, is lying on her desk chair (at **J**). If the theory is true, where will she find Mack, her calico cat? Use the scale drawing of Margie's room shown below, together with (**only**) a compass and straightedge. Place an **M** where Mack will be if the theory is true.

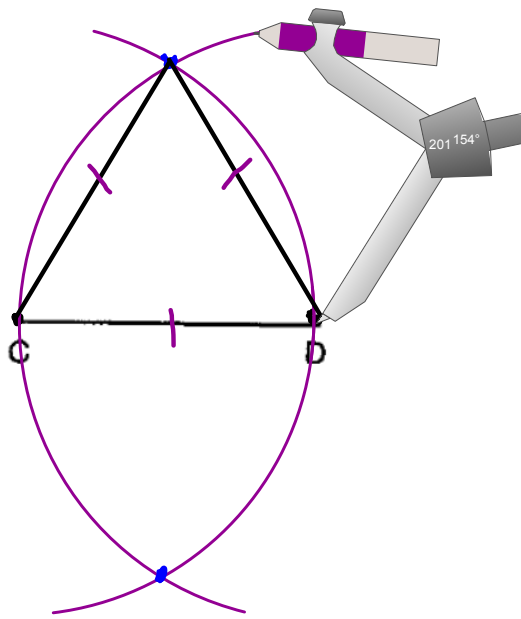
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Example 2:

Construct an equilateral triangle with sides of length \overline{CD} .



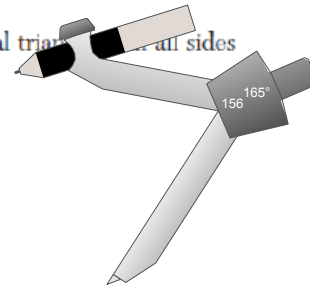
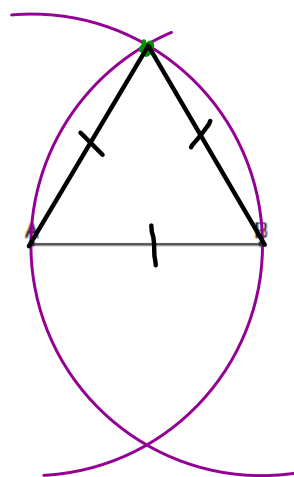
Steps:

1. Draw dots on the endpoints of the given segment.
2. Place the bullseye on one endpoint and move slider onto the other endpoint.
3. Make a semicircle.
4. Without changing the arc, flip the compass around so that the slider and bullseye switch spots.
5. Make another semicircle. The two semicircles should intersect.
6. Draw a dot at the point of intersection.
7. Connect the point of intersection to each endpoint.

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Example 3:

Using a compass and straightedge, and \overline{AB} below, construct an equilateral triangle with all sides congruent to \overline{AB} . [Leave all construction marks.]



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Example 4:

Using a compass and straightedge, on the diagram below of \overleftrightarrow{RS} , construct an equilateral triangle with \overline{RS} as one side. [Leave all construction marks.]

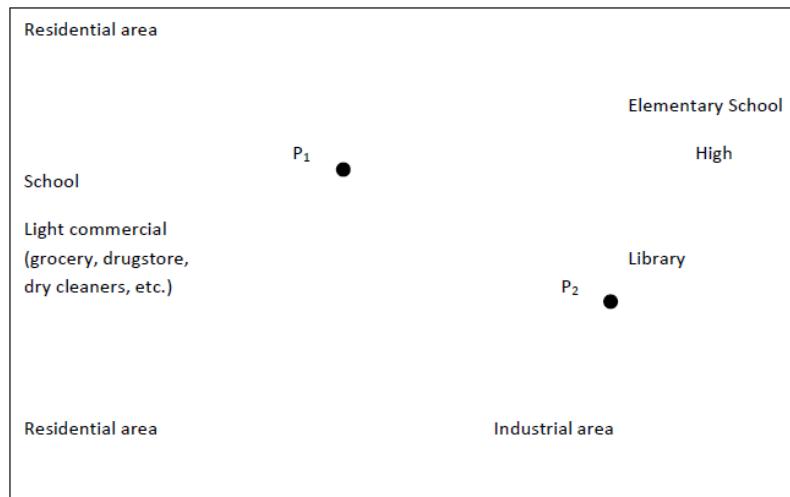


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Example 5:

You will need a compass and straightedge

Cedar City boasts two city parks and is in the process of designing a third. The planning committee would like all three parks to be equidistant from one another to better serve the community. A sketch of the city appears below, with the centers of the existing parks labeled as P_1 and P_2 . Identify two possible locations for the third park and label them as P_{3a} and P_{3b} on the map. Clearly and precisely list the mathematical steps used to determine each of the two potential locations.



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Closing

We saw two different scenarios where we used the construction of an equilateral triangle to help determine a needed location (i.e., the friends playing catch in the park and the sitting cats). Can you think of another scenario where the construction of an equilateral triangle might be useful? Articulate how you would find the needed location using an equilateral triangle.

Classroom → Posters that are equidistant from each other

Play Catch w/ friends and stand equidistant

Equidistant buildings

New office located equidistant from a Starbucks & Post office which are also equidistant to each other.

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