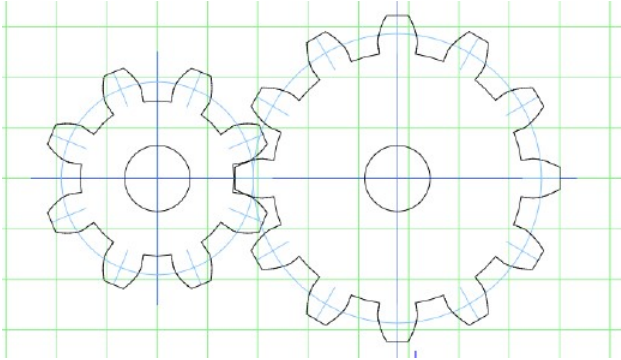


## 1.0 Anchor Problem: Connected Gears



Two gears are connected as shown in the picture below. The smaller gear has **8** teeth and the larger gear has **12** teeth.



- Find a way to determine the number of revolutions the small gear makes based on the number of revolutions the large gear makes. Organize your results.
- If the larger gear makes **20** revolutions, how many revolutions will the smaller gear make?
- If the smaller gear makes **24** revolutions, how many revolutions will the larger gear make?
- If the larger gear makes **1** full revolution, how many revolutions does the smaller gear make?
- If the smaller gear makes **1** full revolution, how many revolutions does the larger gear make?

- f. Create four different representations of the relationship between the number of revolutions the large gear makes and the number of revolutions the small gear makes. Make up a question that can be answered using each representation.

<p><b>Representation 1:</b></p>          <p><b>Question:</b></p>	<p><b>Representation 2:</b></p>          <p><b>Question:</b></p>
<p><b>Representation 3:</b></p>          <p><b>Question:</b></p>	<p><b>Representation 4:</b></p>          <p><b>Question:</b></p>

*This problem was adapted from a problem in Developing Essential Understanding of Ratios, Proportions, & Proportional Reasoning from the National Council of Teachers of Mathematics.*