CLOCK GEARS

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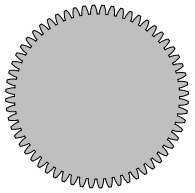
FIGURE 1. A 60 tooth gear.



1. INTRO

I have a son who loves gears and clocks. I work on date and time stuff. Someday, I hope we can build a clock together. In the mean time, I've done some calculations on what the clock gears should look like. For a great reference on date and time, see .

2. CALCULATION

2.1. **Basic Day Math.** There are 60 seconds in a minute.

There are 60 minutes in an hour, thus, 3,600 seconds in an hour.

There are 12 hours in half a day, or 24 hours in a full day. There are 43,200 seconds in half a day, or 86,400 seconds in a full day. There are 720 minutes in half a day, or 1,440 minutes in a full day.

2.2. **Between hands.** The second hand turns around once per minute. As there are 60 seconds in a minute, the second hand turns $\frac{360^\circ}{60} = 6^\circ$ per second.

The minute hand turns around once per hour. As there are 60 minutes in an hour, the minute hand turns $\frac{360^\circ}{60} = 6^\circ$ per minute or $\frac{360^\circ}{3600} = 0.1^\circ = 0^\circ 6' 0''$ per second.

The hour hand turns around once per half-day. As there are 12 hours in a half-day, the minute hand turns $\frac{360^\circ}{12} = 30^\circ$ per hour.

2.3. **Gearing.** The gearing between Second and Minute hand is 60:1 that is 60 minutes per hour.

The gearing between Minute and Hour hand is $(60 * 12) : 1 = 720 : 1$ that is 720 minutes in 12 hours.

3. REFERENCES

Gear image generated with https://github.com/cochrane/Gearmaker

4. License

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