Homework 1: Gears

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1) The frame rate reported by the program when the window is different sizes, specifically 1x1, 300x300 and full screen. Explain your results.

At 1x1: 60 fps
At 300x300: 60 fps
At full screen (2880x1800): 60 fps
My system specs: 3.1 HGz Intel Core i7, Intel HD Graphics 630 1536 MB
Interestingly, I observed the same frame rate when the window size changed. From perusing Google, I learned that frame rate is not affected by window size, but resolution which determines the number of pixels the system must calculate. Resolution and frame rate are inversely proportional. Although screen sizes generally correlate with resolution, it is not always the case as on my Macbook Pro, which seems to cap the frame rate at 60 fps.

2) On some systems the frame rate is a small round number like 60 or 72 or 85 frames per second, and sometimes it is a large number, thousands or tens of thousands of frames per second. Explain why this occurs.

As above-mentioned, frame rate differences on various systems might be rooted in differences in resolution as well as the processing power of the system. If a system has a GPU or stronger CPU, the more frames it could generate per second since more computations can be performed per second. Additionally, if the frame rate is much higher than the system's refresh rate (how many times the system refreshes the images), the screen might not display all the frames that the system produces, and in a way caps the frame rate.

3) Time required to complete the assignment.

Approximately 30 minutes.