Moore's Law: Computer Comparison (20pts.)
Comparing 2 Computers Over Time & Seeing If Moore's Law Succeeded or Failed
(Note: I made two comparisons …students need only do 1 comparison.

John Harrington's First Computer Purchase
When: 1986, Junior Year in College (*Changed from a manual typewriter to a personal computer with a dot matrix printer.*)

Mac SE _ $2600 *(5pts.)*
- Processor: 8 MHz 68000 processor,
- Hard Drive: None – 2 floppy discs.
- Display: 9" monochrome.

Mac 21.5" _ $1099 *(5pts.)*
- Processor: 1.6GHz dual-core Intel Core i5 processor
- Hard Drive: 1TB 5400-rpm hard drive;
- Display: 21.5-inch (diagonal) LED-backlit.

Comparison *(10pts.)*
Question: Has Moore's Law taken place over the years in regards to this computer.
Moore's Law: A Computers Speed/Size/Capacity doubles every 2 years.
1987 to 2017 = 30 years
30 divided by Moore's 2 = A Factor of 15. So 2^{15} = 32,768
Analysis:

Processor
Conversion: 1Mhz = .001Ghz

- Convert Ghz to Mhz: 1.6Ghz x 1000 = 1600 Mhz
- Moore's Law says 8zMhz should grow by a multiple of 32,768 = 262,144Mhz

- **Conclusion**: Today's Mac SE should be 262,144Mhz and it is only 1600Mhz. Thus Moore's Law supposedly failed…supposedly because I have asked several electrical engineers why there is such a tremendous disparity, and they state that it is most likely because I am trying to compare apples and oranges - the processors today are completely different than back in the 80s, so that you can't compare the speeds.

Hard Drive
Conversion: 1 mb = .001Gb
1gb = .001 Tb

- Floppy Disk = 1.44 Mb. New Mac = 1Tb
- Convert Mb to Tb: 1.4 mb x 1000 x 1000 = .0000014 Tb
- Moore's Law says .0000014 Tb should grow by a multiple of 32,768 = 0.0458752 Tb

- **Conclusion**: Today's Mac SE should be 0.0458752 Tb. It is 1TB Thus Moore's Law succeeded.