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| Course | ENGR 13300 | Semester | <i>Fall 2024</i> |
| Assignment Name | <i>Py 1 Ind 1</i> | Section | <i>022</i> |
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| Problem Number | Equation | MS Excel Calculations | Python Calculations | Differences |
|----------------|-----------------------------|--|---|---|
| 1 | $a = 5$ | Cell A1: 5 5 | $a = 5$ 5 | Same |
| 2 | $b = a^{1/3}$ | Cell B1: =Power(A1, 1/3) 1.7100 | $b = a^{1/3}$ 1.7100 | Excel needs functions where python has operators |
| 3 | $c = \sin(\sqrt{b})$ | Cell C1: =SIN(SQRT(B1)) 0.9656 | $c = \mathbf{math.sin(math.sqrt(b))}$ 0.9656 | Python needs to import these functions from math class |
| 4 | $d = \lfloor -90.5 \rfloor$ | Cell D1: =FLOOR(-90.5, 1) -91 | $d = \mathbf{int}(-90.5)$ -91 | Excel needs to specify the significant digits |
| 5 | $e = 254 \bmod 66$ | Cell E1: =MOD(254, 66) 56 | $e = 254\%66$ 56 | Excel needs a function whereas python can be a operator |

| Problem Number | Equation | MS Excel Calculations | Python Calculations | Differences |
|----------------|-----------------------------|-------------------------------|--------------------------------------|--------------------------------|
| 6 | Find the mean | =MEAN(...) -5.4649 | statistics.mean(...) -5.4649 | Use statistics class in python |
| 7 | Find the median | =MEDIAN(...) 1.7100 | statistics.median(...) 1.7100 | Use statistics class in python |
| 8 | Find the maximum | =MAX(...) 56 | max(...) 56 | Same |
| 9 | Find the range | =MAX(...)-MIN(...) 147 | max(...)-min(...) 147 | Same |
| 10 | Find the standard deviation | =STDEV.S(...) 47.5322 | statistics.stdev(...) 47.5322 | Use statistics class in python |

1. What **Python** function did you use to output these variables to the screen? Did you have to use an imported library in **Python**, or was the function built into the standard library?
 - Had to use the built-in print function to output the variables
 - Had to use imported libraries for the actual functions
2. What syntax differences exist between **Python** and **MS Excel**? Be specific.
 - Python requires you to say what variable you are setting anything equal to while excel requires you to be in a specific cell and reference that cell as if it's a variable
 - Excel doesn't have libraries to import for the functions
 - Python you reference multiple variables in a list while excel you reference them in a range over the cells

2. What **Python** function did you use to output these variables to the screen? Did you have to use an imported library in **Python**, or was the function built into the standard library?
 - a. To output the variables to the screen you used the print function
3. What syntax differences exist between **Python** and **MS Excel**? Be specific.