# Problem 2. Day of Week

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| Program: | dayofweek.py |

Write a program named dayofweek.py that accepts a date as input and write to the output the day of the week that date falls on. Your program should accept three command-line arguments: d (day), m (month), and y (year). For m, use 1 for January, 2 for February, and so forth. For output, write 0 for Sunday, 1 for Monday, 2 for Tuesday, and so forth. Use the following formulas for the Gregorian calendar:

The output of the program should look like the following:

% **python dayofweek.py 4 11 2019 # Sep 11, 2001**

11/9/2001 is 2 **# 2 (Tuesday)**

% **python dayofweek.py 4 11 2019 # Nov 6, 2019**

6/11/2019 is 3 **# 3 (Wednesday)**

Figure 1: Sample output for Problem 1

# Problem 3. Mercator Projection

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| Program: | mercprojection.py |

The Mercator projection is a conformal (angle preserving) projection that maps latitude and longitude to rectangular coordinates (x, y). It is widely used – for example, in nautical charts and in the maps that you print for the web. The projection is defined by the equations, and where is the longitude of the point in the centre of the map. Write a program named mercprojection.py that accepts and the latitude and longitude of the point from the command line and write its projection. The output of the program should like the following:

% **python mercprojection.py 0 23.242525 56.419594**

(23.242525, 56.419594) is projected to point (56.419594, 0.41726516720626144)

Figure 2: Sample dialog for the program of Problem 3

# Acknowledgements

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# References

Sedgewick, R., Wayne, K., & Dondero, R. (2015). *Introduction to Programming in Python* (1st ed.). Addison-Wesley Professional.