'''

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CS 110 - B57

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assignment4Ex1

'''

#The getX and getSinX functions are fruitful functions.

#They need return statements because they have numeric values.

#Having global constants are important because if they occur multiple \

#times, they are easy to adjust.

#The values are used when creating the screen, axis and \

#when plotting the graph.

import math

import turtle

MAX\_X = 2\*math.pi

MAX\_Y = 1

CONSTANT\_0 = 0

CONSTANT\_1 = 1

CONSTANT\_2 = 2

CONSTANT\_360 = 360

CONSTANT\_PI = math.pi

def setUpWindow(screenObject):

screenObject.setworldcoordinates(-CONSTANT\_1,-CONSTANT\_2,MAX\_X,MAX\_Y)

screenObject.bgcolor('lightblue')

def getX(degrees):

radianAngle = math.radians(degrees)

return radianAngle

def getSinX(degrees):

return math.sin(getX(degrees))

def setUpTurtle(turtle):

turtle.goto(-CONSTANT\_PI,CONSTANT\_0)

turtle.goto(MAX\_X,CONSTANT\_0)

turtle.penup()

turtle.goto(CONSTANT\_0,CONSTANT\_2)

turtle.pendown()

turtle.goto(CONSTANT\_0,-CONSTANT\_2)

turtle.goto(CONSTANT\_0,CONSTANT\_0)

def drawSinCurve(turtleObject):

for angle in range(CONSTANT\_0,(CONSTANT\_360 + CONSTANT\_1)):

x = math.radians(angle)

y = math.sin(getX(angle))

turtleObject.goto(x,y)

def main():

sn = turtle.Screen()

fred = turtle.Turtle()

setUpWindow(sn)

setUpTurtle(fred)

drawSinCurve(fred)

main()

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