Cedars Math Class

Handout 2.4b, September 30, 2021, Testing Divisibility with Python

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#This code will use Python to test divisibility using the mental arithmetic rules.
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#########################################################
print("hello world") #Just to see if Python is working at all.
#################################################################
x=6024
print ("x equals ", x, ".\n")
#################################################################
#Do some stuff to split up x into a list of its integers.
string_x = str(x)
separated = list(string_x)
print("As a separated string, x is", separated, ".")
digits = list(int(item) for item in separated)
print("As a list of numbers, x is", digits, ".")
print ("The last digit of x is ", digits[-1], ".\n")
#################################################################
#Test for whether x can be divided by TWO.
if digits[-1] == 0 or digits[-1] == 2 or digits[-1] == 4 or digits[-1] == 6 or digits[-1] == 8:
  print("x can be divided by TWO without remainder because it is even.")
else:
  print ("x cannot be divided by TWO without remainder because it is odd.")
print("   More directly,"  ,x,"/2 equals", x/2,".\n")
#################################################################
#Test for whether x can be divided by THREE.
x_added_up = sum(digits)
remainder = x_added_up % 3
if remainder == 0:
  print("x can be divided by THREE without remainder because the sum of its digits divides by 3 evenly.")
else:
  print ("x cannot be divided by THREE without remainder because the sum of its digits do not divide by 3 evenly.")
print("   More directly,"  ,x,"/3 equals", x/3,".\n")
#################################################################
#Test for whether x can be divided by FIVE.
if digits[-1] == 0 or digits[-1] == 5:
  print("x can be divided by FIVE without remainder because it ends with 0 or 5.")
else:
  print ("x cannot be divided by FIVE without remainder because it doesn't end with 0 or 5.")
print("   More directly,"  ,x,"/5 equals", x/5,".\n")
#################################################################
#Test for whether x can be divided by SEVEN.
first_number= 2*digits[-1]
second_number = int(string_x[0:-1])
third_number = second_number - first_number
print("Every digit but the last,",second_number,"minus twice the last digit,",first_number,"equals",third_number,".
if  third_number % 7 == 0 or  third_number == 0:
  print("x can be divided by SEVEN without remainder because of this complicated test.")
else:
  print ("x cannot be divided by SEVEN without remainder because of this complicated test.")
print("   More directly,"  ,x,"/7 equals", x/7,".\n")
#################################################################
```