1. Write a Python program to check if the given number is a Disarium Number?

Ans1

def is\_disarium(num):

num\_str = str(num)

n = len(num\_str)

sum\_of\_digits = sum(int(num\_str[i])\*\* (i+1) for i in range(n))

if sum\_of\_digits == num:

return True

else:

return False

num = 135

if is\_disarium(num):

print(f"{num} is a Disarium number.")

else:

print(f"{num} is not a Disarium number.")

2. Write a Python program to print all disarium numbers between 1 to 100?

Ans2

def is\_disarium(num):

num\_str = str(num)

n = len(num\_str)

sum\_of\_digits = sum(int(num\_str[i])\*\* (i+1) for i in range(n))

if sum\_of\_digits == num:

return True

else:

return False

for i in range(1, 101):

if is\_disarium(i):

print(i)

3. Write a Python program to check if the given number is Happy Number?

Ans3

def is\_happy(num):

prev\_sums = []

while True:

num\_str = str(num)

sum\_of\_squares = sum(int(digit)\*\*2 for digit in num\_str)

if sum\_of\_squares == 1:

return True

if sum\_of\_squares in prev\_sums:

return False

prev\_sums.append(sum\_of\_squares)

num = sum\_of\_squares

num = 19

if is\_happy(num):

print(f"{num} is a Happy number.")

else:

print(f"{num} is not a Happy number.")

4. Write a Python program to print all happy numbers between 1 and 100?

Ans4

def is\_happy(num):

prev\_sums = []

while True:

num\_str = str(num)

sum\_of\_squares = sum(int(digit)\*\*2 for digit in num\_str)

if sum\_of\_squares == 1:

return True

if sum\_of\_squares in prev\_sums:

return False

prev\_sums.append(sum\_of\_squares)

num = sum\_of\_squares

for i in range(1, 101):

if is\_happy(i):

print(i)

5. Write a Python program to determine whether the given number is a Harshad Number?

Ans5

def is\_harshad(num):

sum\_of\_digits = sum(int(digit) for digit in str(num))

if num % sum\_of\_digits == 0:

return True

else:

return False

num = 18

if is\_harshad(num):

print(f"{num} is a Harshad number.")

else:

print(f"{num} is not a Harshad number.")

6. Write a Python program to print all pronic numbers between 1 and 100?

Ans6  
def is\_pronic(num):

for i in range(1, int(num/2) + 1):

if i \* (i+1) == num:

return True

return False

for i in range(1, 101):

if is\_pronic(i):

print(i)