1. Write a Python program to check if the given number is a Disarium Number?
2. Write a Python program to print all disarium numbers between 1 to 100?
3. Write a Python program to check if the given number is Happy Number?
4. Write a Python program to print all happy numbers between 1 and 100?
5. Write a Python program to determine whether the given number is a Harshad Number?
6. Write a Python program to print all pronic numbers between 1 and 100?

Ans: Sure! Here are the Python programs for each of the tasks you requested:

1. Checking if a number is a Disarium Number:

```python

def is\_disarium(number):

num\_str = str(number)

length = len(num\_str)

disarium\_sum = 0

for i in range(length):

disarium\_sum += int(num\_str[i]) \*\* (i + 1)

return disarium\_sum == number

number = int(input("Enter a number: "))

if is\_disarium(number):

print(number, "is a Disarium Number")

else:

print(number, "is not a Disarium Number")

```

2. Printing all Disarium Numbers between 1 and 100:

```python

def is\_disarium(number):

num\_str = str(number)

length = len(num\_str)

disarium\_sum = 0

for i in range(length):

disarium\_sum += int(num\_str[i]) \*\* (i + 1)

return disarium\_sum == number

print("Disarium numbers between 1 and 100:")

for i in range(1, 101):

if is\_disarium(i):

print(i)

```

3. Checking if a number is a Happy Number:

```python

def is\_happy(number):

seen\_numbers = set()

while number != 1:

number = sum(int(digit) \*\* 2 for digit in str(number))

if number in seen\_numbers:

return False

seen\_numbers.add(number)

return True

number = int(input("Enter a number: "))

if is\_happy(number):

print(number, "is a Happy Number")

else:

print(number, "is not a Happy Number")

```

4. Printing all Happy Numbers between 1 and 100:

```python

def is\_happy(number):

seen\_numbers = set()

while number != 1:

number = sum(int(digit) \*\* 2 for digit in str(number))

if number in seen\_numbers:

return False

seen\_numbers.add(number)

return True

print("Happy numbers between 1 and 100:")

for i in range(1, 101):

if is\_happy(i):

print(i)

```

5. Checking if a number is a Harshad Number:

```python

def is\_harshad(number):

digits\_sum = sum(int(digit) for digit in str(number))

return number % digits\_sum == 0

number = int(input("Enter a number: "))

if is\_harshad(number):

print(number, "is a Harshad Number")

else:

print(number, "is not a Harshad Number")

```

6. Printing all Pronic Numbers between 1 and 100:

```python

def is\_pronic(number):

for i in range(1, int(number \*\* 0.5) + 1):

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

return True

return False

print("Pronic numbers between 1 and 100:")

for i in range(1, 101):

if is\_pronic(i):

print(i)

```

You can run each program separately in Python to see the results.