```
#1. Product or Sum Condition
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))

product = a * b
if product > 500:
    print("Result (Sum):", a + b)
else:
    print("Result (Product):", product)
```

```
Enter first number: 10
Enter second number: 20
Result (Product): 200
```

```
#2. Find the Greatest of Three Numbers
a = float(input("Enter first number: "))
b = float(input("Enter second number: "))
c = float(input("Enter third number: "))

greatest = max(a, b, c)
print("Greatest number:", greatest)
```

```
Enter first number: 1100
Enter second number: 200
Enter third number: 300
Greatest number: 1100.0
```

```
#3. Remove Duplicate Items from a List
def remove_duplicates(lst):
    result = []
    for item in lst:
        if item not in result:
            result.append(item)
    return result

nums = [1, 2, 3, 2, 4, 1, 5]
print("Without duplicates:", remove_duplicates(nums))
```

```
Without duplicates: [1, 2, 3, 4, 5]
```

```
#4. Remove and Replace Elements in a List
nums = [3, 2, 2, 3]
remove = 3

result = [x for x in nums if x != remove]
result += ['_'] * (len(nums) - len(result))
print("Modified list:", result)
```

```
Modified list: [2, 2, '_', '_']
```

```
#5. Check for Duplicates in a List
def has_duplicates(nums):
    return len(nums) != len(set(nums))

print(has_duplicates([1, 2, 3, 1]))
print(has_duplicates([1, 2, 3, 4]))
```

```
True
False
```

```
#6. Repeatedly Sum Digits Until Single Digit
def digital_root(num):
    while num >= 10:
        num = sum(int(digit) for digit in str(num))
    return num

print("Final digit:", digital_root(38))  # Output: 2
```

```
Final digit: 2
```

```
#7. Duplicate Each Occurrence of Zero in a List
def duplicate_zeros(arr):
    n = len(arr)
    i = 0
    while i < n:
        if arr[i] == 0:
            arr.insert(i + 1, 0)
            arr.pop()
            i += 2
        else:
            i += 1
    return arr

arr = [1, 0, 2, 3, 0, 4, 5, 0]
print("Modified array:", duplicate_zeros(arr))
```

```
Modified array: [1, 0, 0, 2, 3, 0, 0, 4]
```

```
#8. Find the Intersection of Two Lists
def list_intersection(nums1, nums2):
    return list(set(nums1) & set(nums2))

nums1 = [1, 2, 2, 1]
nums2 = [2, 2]
print("Intersection:", list_intersection(nums1, nums2))  # Output: [2]
```

```
Intersection: [2]
```

Start coding or generate with AI.