

```
1 a = int(input("Enter a:"))
2 b = int(input("Enter b:"))
3
4 # Goal: calculate a*b without using *
5
6 p = 1
7 count = 1
8 while count <= b:
9     p = p * a
10    count += 1
11
12
13 print(p)
14
```

```
1 n = int(input("Enter n:"))
2
3 f = 1
4 count = 2
5
6 while count <= n:
7     f = f * count
8     count += 1
9
10
11
```

```
1
2
3 n = int(input("Enter n:"))
4
5
6 # n = 5
7 for i in range(n): # (start, end, increment)
8     for j in range(1, i+2, 1):
9         print(j, end=' ')
10
11     print()
12
13
14
15
```

```
1 # This program determines ALL combinations of quarters, dimes, nickels, and
2 # pennies that make a certain amount of money.
3 QUARTER_VALUE = 25
4 DIME_VALUE = 10
5 NICKEL_VALUE = 5
6 DOLLAR_VALUE = 100
7
8 amount = float(input("How many dollars would you like to make into change? "))
9 number_cents = int(amount * DOLLAR_VALUE)
10
11 # Count down the number of quarters I can possibly use, starting with the max.
12 num_quarters = number_cents // QUARTER_VALUE
13 while num_quarters >= 0:
14     # Given a certain number of quarters I am using, find out how much money
15     # is left for the other coins.
16     left_over_quarters = number_cents - num_quarters * QUARTER_VALUE
17
18     # Now count down the number of dimes I can use, if I am already using
19     # a certain number of quarters, and count down from there.
20     num_dimes = left_over_quarters // DIME_VALUE
21     while num_dimes >= 0:
22         left_over_dimes = left_over_quarters - num_dimes * DIME_VALUE
23
24         # Repeat for nickels: given a number of quarters and dimes, find
25         # how many nickels can be used, and count down from there.
26         num_nickels = left_over_dimes // NICKEL_VALUE
27         while num_nickels >= 0:
28             num_pennies = left_over_dimes - num_nickels * NICKEL_VALUE
29
30             print(num_quarters, " quarters, ", num_dimes, " dimes, ", num_nickels, "
31                 \
32                 " nickels, ", num_pennies, " pennies.")
33
34             # Now use one fewer nickel, and recalculate the number of pennies.
35             num_nickels -= 1
36
37             # Now use one fewer dime. Where do we go next, and what do we do?
38             num_dimes -= 1
39
40             # Now use one quarter. Getting dizzy yet?
41             num_quarters -= 1
```