Congratulations! You passed!

TO PASS 80% or higher

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Practice Quiz: While Loops

TOTAL POINTS 4

1. What are while loops in Python? **1 / 1 point**

● While loops let the computer execute a set of instructions while a condition is true.

○ While loops instruct the computer to execute a piece of code a set number of times.

○ While loops let us branch execution on whether or not a condition is true.

○ While loops are how we initialize variables in Python.

✓ **Correct**

Right on! Using while loops we can keep executing the same group of instructions until the condition stops being true.

2. Fill in the blanks to make the print_prime_factors function print all the prime factors of a number. A prime factor is a number that is prime and divides another without a remainder. **1 / 1 point**

```python
def print_prime_factors(number):
  # Start with two, which is the first prime
  factor =2
  # Keep going until the factor is larger than the number
  while factor <= number:
    # Check if factor is a divisor of number
    if number % factor == 0:
      # If it is, print it and divide the original number
      print(factor)
      number = number / factor
    else:
      # If it's not, increment the factor by one
      factor+=1

  return "done"

print_prime_factors(100) # Should print 2,2,5,5

```

Run

Reset

```
2
2
5
5
2
2
5
5
done
```

✓ **Correct**

You nailed it! You've got the code to print all the right prime factors. Well done!

3. The following code can lead to an infinite loop. Fix the code so that it can finish successfully for all numbers.

1 / 1 point

```python

def is_power_of_two(n):
  if n == 0:
    return 0
  # Check if the number can be divided by two without a remainder
  while n % 2 == 0:
    n = n // 2
  # If after dividing by two the number is 1, it's a power of two
  if n == 1:
    return True
  return False

print(is_power_of_two(4))


```

Run

Reset

```
True
```

✓ **Correct**

Awesome! You fixed a tricky error that was hard to find and the function now behaves correctly.

4. Fill in the empty function so that it returns the sum of all the divisors of a number, without including it. A divisor is a number that divides into another without a remainder.

```python
def sum_divisors(n):
  # Return the sum of all divisors of n, not including n
  z=1
  sum=0
  while n>z:
    if n%z == 0:
      sum = sum + z
      z=z+1
    else:
      z=z+1
  return sum

print(sum_divisors(6)) # Should be 1+2+3=6
print(sum_divisors(12)) # Should be 1+2+3+4+6=16
```

Run

Reset

```
6
16
```

✓ **Correct**

Well done, you! You've written a complex while loop and got Python to do the work for you.