1.How many seconds are in an hour? Use the interactive interpreter as a calculator and multiply the number of seconds in a minute (60) by the number of minutes in an hour (also 60).

sol. 60

ANS :- To calculate the number of seconds in an hour, we can multiply the number of seconds in a minute (60) by the number of minutes in an hour (60):

```python

seconds\_in\_minute = 60

minutes\_in\_hour = 60

seconds\_in\_hour = seconds\_in\_minute \* minutes\_in\_hour

print(seconds\_in\_hour)

```

Therefore, there are 3600 seconds in an hour.

2. Assign the result from the previous task (seconds in an hour) to a variable called seconds\_per\_hour.

ANS : - seconds\_per\_hour = 60 \* 60

3. How many seconds do you think there are in a day? Make use of the variables seconds per hour and minutes per hour.

ANS : - To calculate the number of seconds in a day, we can multiply the number of seconds per hour (3600) by the number of hours in a day (24). Here's the calculation:

```python

seconds\_per\_hour = 60 \* 60 # 3600 seconds

hours\_per\_day = 24

seconds\_per\_day = seconds\_per\_hour \* hours\_per\_day

print(seconds\_per\_day)

```

The result is 86,400 seconds in a day.

4. Calculate seconds per day again, but this time save the result in a variable called seconds\_per\_day

ANS : - Here's the calculation to determine the number of seconds in a day, saving the result in a variable called `seconds\_per\_day`:

```python

seconds\_per\_hour = 60 \* 60 # 3600 seconds

hours\_per\_day = 24

seconds\_per\_day = seconds\_per\_hour \* hours\_per\_day

```

The variable `seconds\_per\_day` will hold the value 86,400, representing the number of seconds in a day.

5. Divide seconds\_per\_day by seconds\_per\_hour. Use floating-point (/) division.

ANS : - To divide `seconds\_per\_day` by `seconds\_per\_hour` using floating-point division, we can use the `/` operator. Here's the code:

```python

seconds\_per\_hour = 3600

seconds\_per\_day = seconds\_per\_hour \* 24

result = seconds\_per\_day / seconds\_per\_hour

```

The variable `result` will contain the value `24.0`, indicating that there are 24 hours in a day.

6. Divide seconds\_per\_day by seconds\_per\_hour, using integer (//) division. Did this number agree with the floating-point value from the previous question, aside from the final .0?

ANS : - To divide `seconds\_per\_day` by `seconds\_per\_hour` using integer division, we can use the `//` operator. Here's the code:

```python

seconds\_per\_hour = 3600

seconds\_per\_day = seconds\_per\_hour \* 24

result = seconds\_per\_day // seconds\_per\_hour

```

The variable `result` will contain the value `24`, which is the same as the floating-point value `24.0` from the previous question. The only difference is the absence of the decimal point and `.0` in the integer division result.

7. Write a generator, genPrimes, that returns the sequence of prime numbers on successive calls to its next() method: 2, 3, 5, 7, 11, ...

ANS : -

def genPrimes():

primes = [2]

yield 2

n = 3

while True:

is\_prime = True

for prime in primes:

if n % prime == 0:

is\_prime = False

break

if is\_prime:

primes.append(n)

yield n

n += 2