**Question 1**

Naturally, I have no clue how to solve this as intended.

Instead, I plugged the numbers into a Python script and let it do it for me because computers are smarter than I am.

The factors of n = 945859840905737 are 28713173 and 32941669.

Script:

# Retrieve the prime factors of a number n

import math

n = 945859840905737

# Even number divisible

while n % 2 == 0:

   print (2),

   n = n / 2

# n became odd

for i in range(3,int(math.sqrt(n))+1,2):

   while (n % i == 0):

      print (i)

      n = n / i

if n > 2:

   print (n)

**Question 2:**

t = 557214

p and q should be 28713173 and 32941669, but I used the above program to calculate this because I couldn’t get past calculating t.

"""

Factor n given the following information:

s = (p - q) / 2

t = (p + q) / 2

t > sqrt(n)

t^2 - n is a perfect square

Test successive integers to find t and s, hence p and q.

"""

import math

def isPerfectSquare(num) -> bool:

  if num <= 0:

    return False

  root = math.sqrt(num)

  if int(root + 0.5) \*\* 2 == num:

    return True

  else:

      return False

n = 310485170747

t = math.floor(math.sqrt(n))

while not isPerfectSquare((t \*\* 2) - n):

  t += 1

print(f'This is our t: {t}')