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:

```python
# 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.

```python
"""
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}')
```