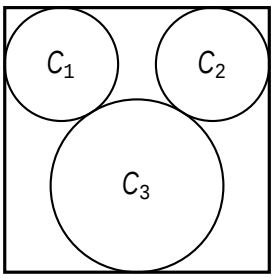
MATHEMATICS ENRICHMENT CLUB.
Problem Sheet 11, August 13, 2019

1. Find all positive integers n, such that

$$\frac{n^2 + 11n + 2}{n + 5};$$

is also an integer.

2. Three circles t inside a square as shown in the diagram. The two smaller circles, C_1 and C_2, have radius 3 and each is tangent to the larger circle, C_3. The square has side length 14. Find the radius of C_3.



3. Find all prime numbers, p, such that $4p^2 + 1$ and $6p^2 + 1$ are both prime.

4. Each of 100 stones has a sticker showing its true weight. No two stones weigh the

Senior Questions

1. (a) A parallelogram has sides of length a and b and