

SMA205, HOME ASSIGNMENT 1

Deadline for hand-in: Monday, Dec 4.

Please write your full name here:

and your registration number here: _ _ _ $\underbrace{\quad\quad\quad}_x$ _ _ _

Let x be the four-digit number indicated. For example, if your registration number is I20 2477 04, then $x = 2477$.

1. Is the following formula correct or not, for all positive integers n ?

$$1^2 + 2^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

Prove your answer! (5 marks)

2. Let $a, b, \in \mathbb{Z}$. Prove the following statement:

$$\text{If } a^2 + b^2 \equiv 0 \pmod{3}, \text{ then } ab \equiv 0 \pmod{3}.$$

(3 marks)

3. Find the prime factorization of the number x .

Answer: _____

(2 marks)