12. (i) A student states that

$$\text{``} n^2 - n + 5 \text{ is a prime number for all } n \in \mathbb{N} \text{''}$$

Show, by counter example, that the student's statement is **not** true.

(1)

(ii) Prove that

$$\tan\theta + \frac{1}{\tan\theta} \equiv \frac{1}{\sin\theta\cos\theta} \qquad \theta \neq (90n)° \quad n \in \mathbb{N}$$

(3)