Assignment - 3

① Ex. 4.1 Problem 10

<u>T.P.</u> :- There is an integer n such that $2n^2 - 5n + 2$ is prime.

<u>Proof</u> :- $2n^2 - 5n + 2 = 2n^2 - 4n - n + 2$

4

-5

-4 -1

$= 2n(n-2) - 1(n-2)$

$= (2n-1)(n-2)$

$\therefore$ $n - 2 = 1$

$\boxed{n = 3}$

② Ex. 4.1. Problem 13

Disprove by counterex.

For all integers m & n, if $2m + n$ is odd then m & n are both odd.

<u>Proof</u> :- if $m = 2$ & $n = 1$

$2m + n = 2(2) + 1 = 5$

Now $2m+n$ is odd but m is even.

(So it implies that n is odd).

③ Ex 4.1. Problem 27 :-

<u>T.P.</u> :- Sum of any two odd integers is even.

Let $n = 2n_0 + 1$

& $m = 2m_0 + 1$

$\therefore n + m = 2n_0 + 2m_0 + 2$

$= 2(n_0 + m_0 + 1)$

$= 2(\text{integer})$

$=$ even ——— by definition.