



Question 6

a) i) nth term = $a + (n-1)d$ First term $a = -1$ Common difference $d = 5$ nth term $n = 60$

$$= -1 + (60-1)5$$

ii) $= 294$

ii) Sum = $\frac{n}{2} (2a + (n-1)d)$ or $\frac{n}{2} (a+L)$ $L = \text{last term}$

$$= \frac{60}{2} (-1 + 294)$$

$$= 30 (293)$$

$$= 8790$$

b) ~~about 500~~ about 2.5095

c) i) $y' = 3x^2 + 2x - 1 = 0$ $3x^2 - 1$ $(3x-1)(x+1)$ $x = -1, 1/3$ sub

$$-1^3 + -1^2 + 1 + 2 = 3 \quad \text{pt at } (-1, 3)$$

$$1/3^3 + 1/3^2 - 1/3 + 2 = 1.814 \quad \text{pt at } (1/3, 1.814)$$

or $(1/3, 1^{2/27})$

ii) ~~where $x > 0$ (around $x = 1$)~~ where $x > -1/3$, this is half way between A & B, and is where a verticle inflexion pt seems to arise.

iii) $k = 2, 3, 1^{2/27}$