**3G Recurrence Relationships**

1. Find the first four terms of the following sequences:

a) $u\_{n+1}=u\_{n}+4$, $u\_{1}=7$

b) $u\_{n+1}=u\_{n}+4$, $u\_{1}=5$

1. Find the first five terms generated by the following sequence:

$u\_{n+1}=2u\_{n}+3$, $u\_{1}=2$

1. A sequence $a\_{1}, a\_{2}, a\_{3},$… is defined by:

$$a\_{1}=p$$

$a\_{n+1}=\left(a\_{n}\right)^{2}-1,$ $n\geq 1$

where $p<0$

1. Show that $a\_{3}=p^{4}-2p^{2}$
2. Given that $a\_{2}=0$, find the value of $p$
3. Find:

$$\sum\_{r=1}^{200}a\_{r}$$

d) Find the value of $a\_{199}$