5.5

a) $3n+1$

$n=21$

21. 64. 32. 16 8 4 2 1

Terminating Value = 1

Lenght = 8

$n=13$

13, 40, 20, 10, 5, 16. 8 4 2 1

T.V = 1

Length = 10

iii) $n = 31 \ldots TV = 1$

Length = 108

$n = 1$

$3(1)+1 = 4$ 2

$n = 2$ 1 4

$n = 32, 16, 8, 4, 2, 1, 4, 2, 1$

2^n

$Length = n+1$

$$n = (8k+4)/2 = (4k+2)/2 = 2k+1$$

$$(2k+1)3+1 = (6k+4)/2 = 3k+2$$

$$n = (8k+5) \ldots \; 3k+2$$

$n = 8k+4$

$k=1 \rightarrow 12\ 6\ 3\ 10\ 5\ 16\ 8\ 4\ 2\ 1$

$n+1$ $8k+5 \rightarrow 13\ 40\ 20\ 10\ 5\ 16 \ldots$

$k=2$

$8k+4 \rightarrow 21\ 20\ 10\ 5\ 16\ 8\ 4\ 2\ 1$

$8k+5 \rightarrow 21.64\ 32\ 16\ 8\ 4\ 2\ 1$

$k=3$

$8k+4 \rightarrow 28\ 14\ 7\ 22\ 11\ 34\ 17 \ldots 1$

$8k+5 \rightarrow 29\ 88\ 44\ 22 \ldots$

$L(n) = L(n+1)$ ✓

$n = 128k + 28$

$n+1 = 128k + 29$

$n+2 = 128k + 30$

$128k+28 \ldots 162k+40$

$n+1 = 128k+29 \ldots 162k+40$

$n+2 = 128k+30 \ldots 162k+40$

$L = 11$

$K=1$

$128K+28 = 156, 78\ 39\ 118\ 59\ 178\ 89\ 268\ 134\ 67$

$202, 101, 304 \ldots 1$

$128k+29 = 157\ 472\ 236\ 118\ 59\ 178\ 89\ 268$

$134\ 67\ 202\ 101\ 304 \ldots 1$

$128k+30 = 158\ 79\ 238\ 119\ 358\ 179\ 539$

$269\ 808\ 404\ 202\ 101 \ldots 1$

$\Rightarrow L(n) = L(n+1) = L(n+2)$

$8K \times 16 = 128K$

$4 \times 7 = 28$

$128K \times 16 = 2048K$

$28 \times 7 = 196$

$n = 2048K + 196$

$n+1 = 2048K + 197$

$n+2 = 2048K + 198$

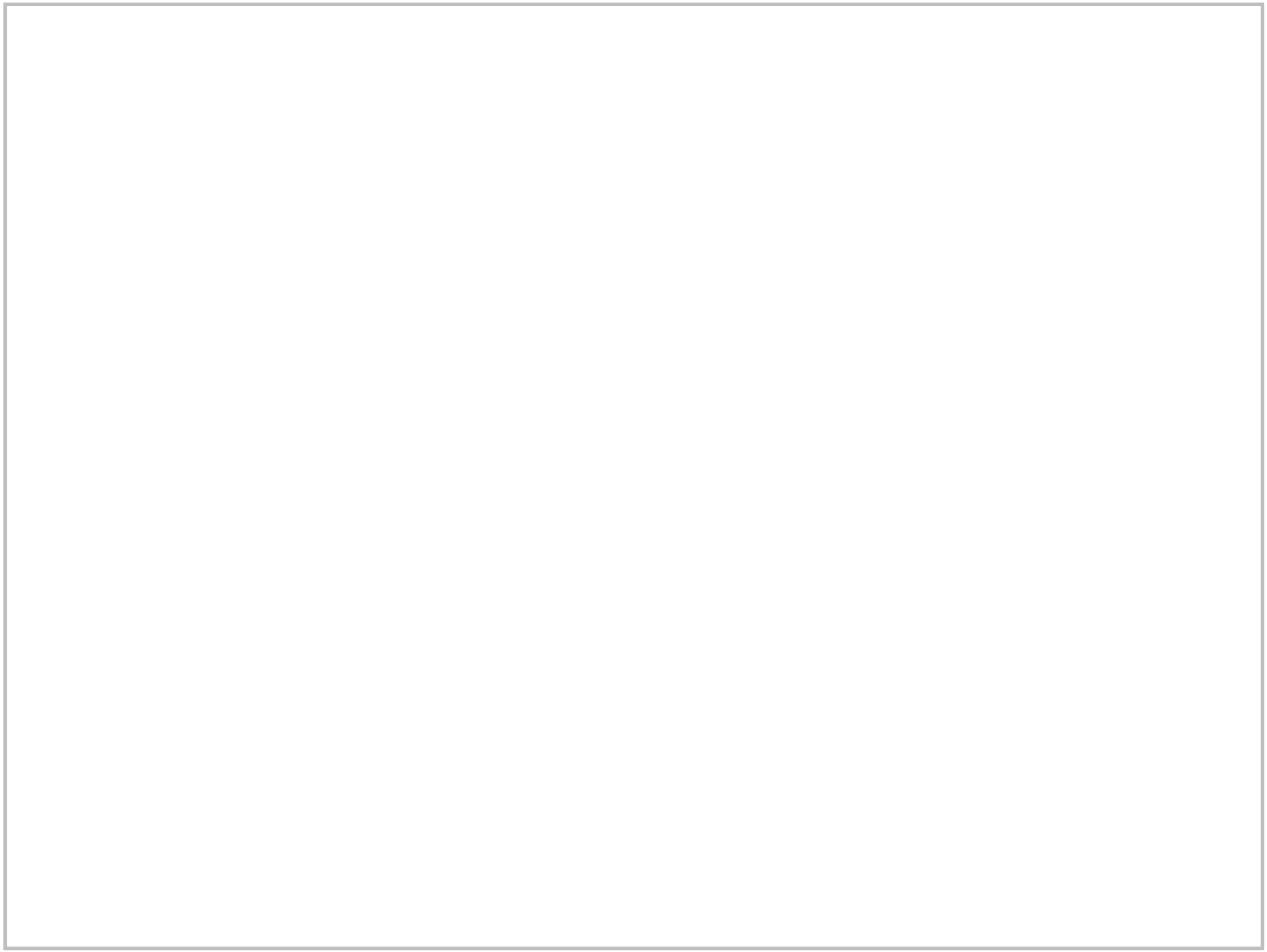
$L(n) = L(n+1) = L(n+2)$

$$1152K + 112$$

$n+3 = 204k + 199$

$n, n+1$

$n, n+1, n+2$



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