

12	(i)		$A = 500$ $k = 1.044$	B1 B1 [2]	3.3 1.1		
12	(ii)		500×1.044^{10} $= 769.1$ which is not close to 650 so not consistent	M1 A1 [2]	3.4 1.1	Ft www	May use 650 and show k or A different
12	(iii)		exponential growth oe	B1 [1]	3.5a	OR increase for ever, oe	

Question		Answer	Marks	AOs		Guidance
12	(iv)	$t = 0, N = 500$ $t = 10, N = 650.37 \approx 650$ model predicts number of fruit flies tends to 750 in the long run	B1 B1 B1 [3]	1.1 1.1 3.5a	Oe 'N will not go beyond 750'	Allow shown using large value of t
12	(v)	(A) Oscillations	B1 [1]	3.5b	oe	
		(B) cosine or sine oe	B1 [1]	3.5c	Eg Introducing a multiplier of $(-1)^t$ if t is a large integer.	