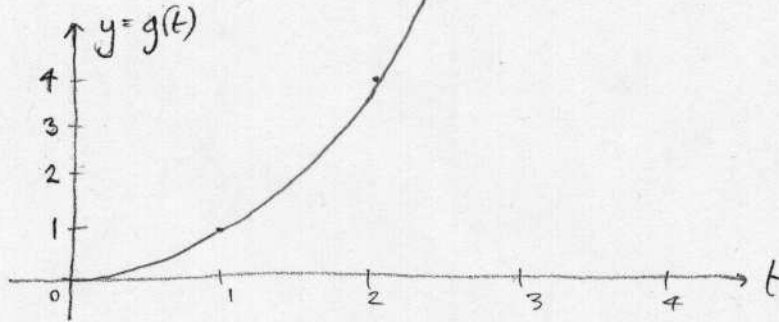


# MATH 5 WORKSHEET : Functions & Periods SOLUTIONS -

3/28/07  
Barnett

Sketch the following functions & give their periods or state nonperiodic

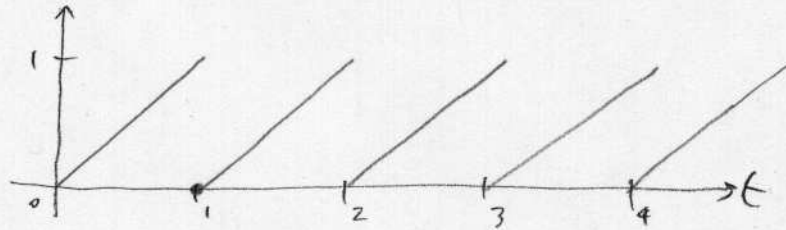
$$g(t) = t^2$$



period = ?  
(none)

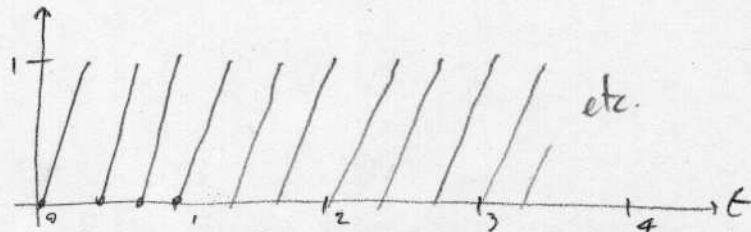
$$g(t) = \text{frac}(t)$$

↗  
this means, the fractional part of  $t$ , ie  $t - \text{floor}(t)$



period = 1

$$g(t) = \text{frac}(3t)$$

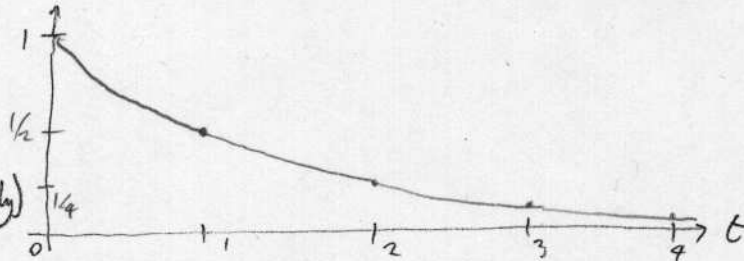


period =  $\frac{1}{3}$

$t$  is zero when  $3t = \text{integer}$ , ie  $t = 0, \frac{1}{3}, \frac{2}{3}, \frac{3}{3}, \dots$

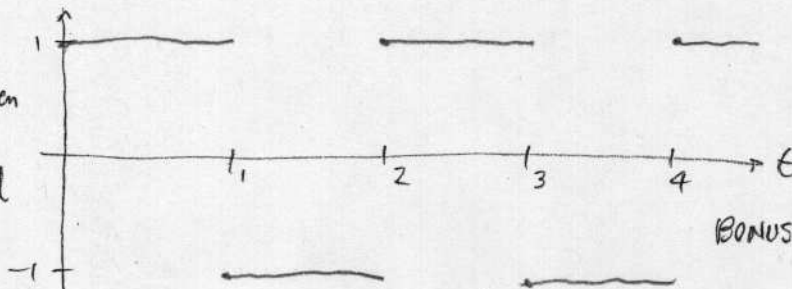
$$g(t) = 2^{-t}$$

(plot for integer  $t$  then join up smoothly)



period =  
(none)

$$f(t) = \begin{cases} +1, & \text{if floor}(t) \text{ even} \\ -1, & \text{if floor}(t) \text{ odd} \end{cases}$$



period = 2

BONUS: What if change 'even' to 'prime' and 'odd' to 'not prime'?