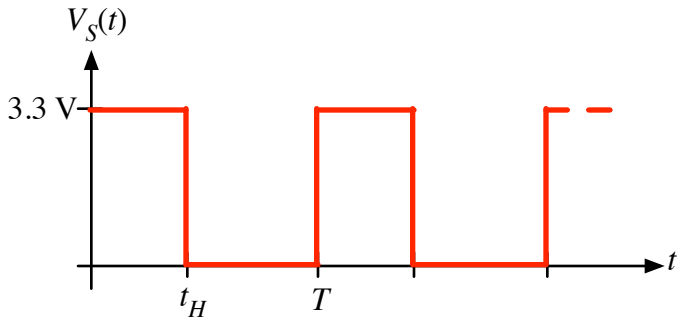
EE 201 — HW 1-12 Name_____

A digital square-wave voltage is shown at right. The voltage is periodic with $T = 5$ ms. During each period he voltage is "high" with a value of 3.3 V for a time of t_H ms, and it is low (= 0 V) for the remainder of the period.



a) Calculate the RMS voltage if $t_H = 2.5$ ms. v_{RMS} = _____

b) Calculate the RMS voltage if $t_H = 1$ ms. v_{RMS} = _____

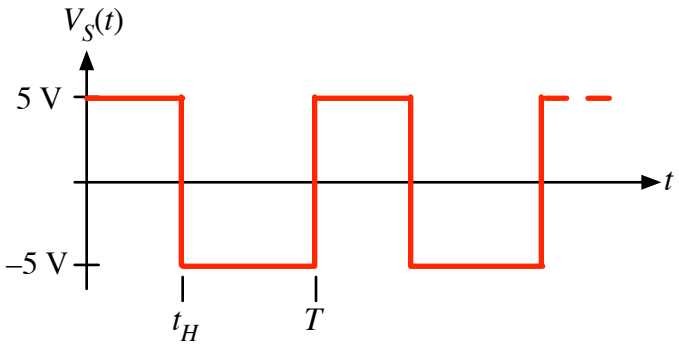
c) Calculate the RMS voltage if $t_H = 4$ ms. v_{RMS} = _____

d) Express the RMS voltage in terms of the *duty cycle D*, where $D = t_H / T$.

v_{RMS} = _____

e) Finally, what is the RMS voltage of the square wave shown below ($t_H = 0.1$ ms and $T = 0.3$ ms)?

v_{RMS} = _____



Write your answers — and whatever work will fit — on this sheet. Staple any sheets with additional work behind.