

1. A periodic waveform is shown in Figure 1.

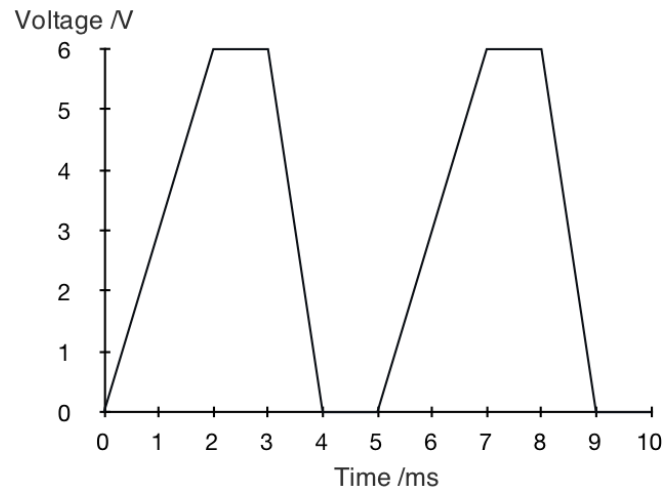


Figure 1: Waveform for question 1

- (a) Express the voltage waveform as a set of mathematical equations for one period.
- (b) Determine:
 - i. the instantaneous voltage at 1ms,
 - ii. the peak voltage, and
 - iii. the RMS voltage.
- (c) If the waveform in Figure 1 is the voltage across a $1\mu\text{F}$ capacitor, determine and sketch (with labelled axes) the **current** through the capacitor for one period.

(17 marks)