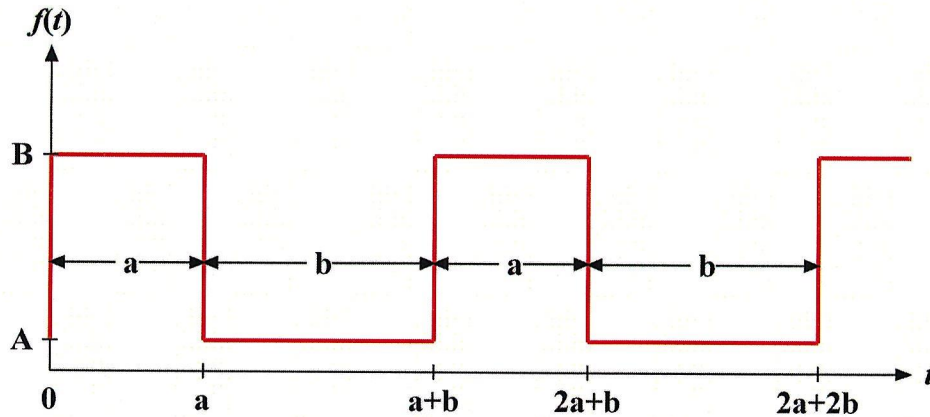


Homework Problem #016

The red waveform shown below is periodic. Determine its average and effective (rms) values in terms of a , b , A and B .



$$\begin{aligned}
 F_{ave} &= \frac{1}{a+b} \left\{ \int_0^a B dt + \int_a^{a+b} A dt \right\} \\
 &= \frac{1}{a+b} \{ Ba + bA \} \\
 &= \frac{Ba + bA}{a+b}
 \end{aligned}$$

$$\begin{aligned}
 F_{rms} &= \sqrt{\frac{1}{a+b} \left\{ \int_0^a B^2 dt + \int_a^{a+b} A^2 dt \right\}} \\
 &= \sqrt{\frac{1}{a+b} \{ B^2 a + bA^2 \}} \\
 &= \sqrt{\frac{B^2 a + bA^2}{a+b}}
 \end{aligned}$$