worksheet 6.1.1

$L := 1 \cdot 10^{-3}$ H $C := 100 \cdot 10^{-9}$ F $R := 20$ Ω

$V := 1$ V $dt := 10^{-6}$ s $N := 100$

$$D := \begin{pmatrix} 0 \\ 0 \end{pmatrix} \qquad \text{next}(D) := \left| \begin{array}{l} I \leftarrow D_1 \\ Q \leftarrow D_2 \\ dI \leftarrow \frac{dt}{L} \cdot \left(V - R \cdot I - \frac{Q}{C} \right) \\ I \leftarrow I + dI \\ Q \leftarrow Q + I \cdot dt \\ \begin{pmatrix} I \\ Q \end{pmatrix} \end{array} \right.$$

$i := 2 .. N$ $Iout_i := \left| \begin{array}{l} D \leftarrow \text{next}(D) \\ D_1 \end{array} \right.$ $t_i := (i - 1) \cdot dt$

Figure 6.1.2 Calculating the transient response of a series LCR circuit

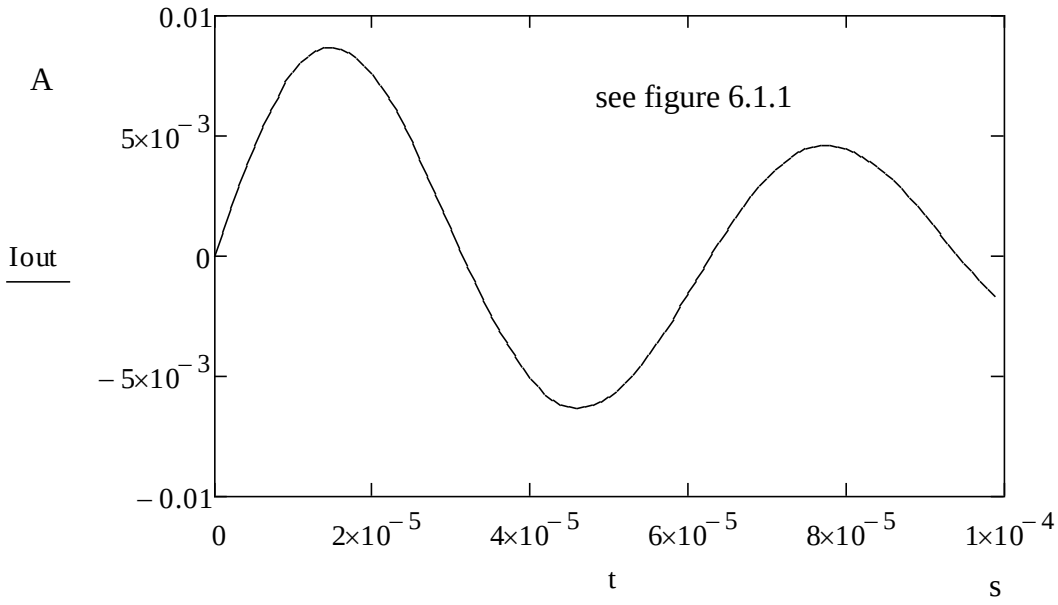

Figure 6.1.3 Transient response of series LCR circuit