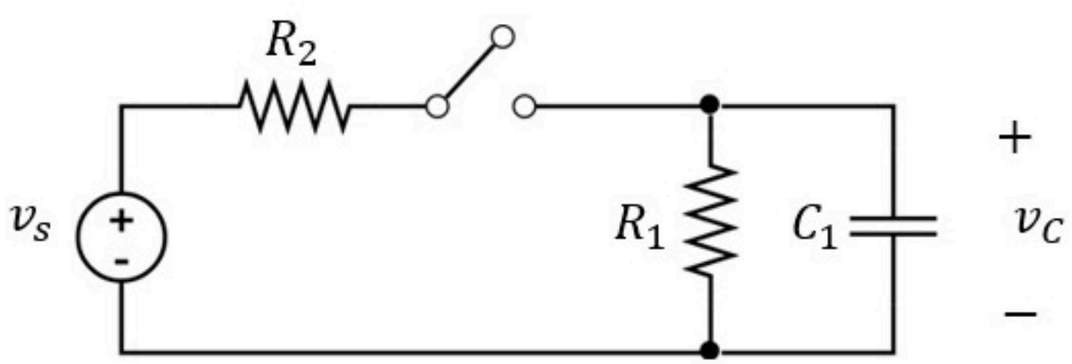
Phasors 011

Unlimited Attempts.

In the circuit below, $v_s(t) = A_1 \cdot \cos(25 \cdot 10^4 \cdot t)$.

The switch is closed for $t < 0$, and opens at time $t = 0$ s.



Find these voltages:

$v_1 = v_C(0^+)$ $\quad$ $v_2 = v_C(t_0)$

Note, for your calculations, use: $e^{-1/1.5} \approx 0.5$

Solve without a calculator

Given Variables:

R1 : 6 kohm
R2 : 12 kohm
C1 : 1 nF
A1 : 12 V
to : 8 us

Calculate the following:

v1 (V) :

2 ✓

v2 (V) :

0.5 ✓

Hint: Solve steady state with phasors; use it to find the initial condition for the RC transient analysis.