Neglect all capacitances, except the explicitly drawn 1nF capacitor. S1 is an ideal switch; it is closed for $-\infty < t < 0$ and open for $t \geq 0$.

Sketch $V_{out}(t)$, calculate and mark pertinent breakpoints.

$V_{DD}=10V$

$1k\Omega$

$1nF$

V_{out}

M1

S1 t=0

1mA

Model for M1 (active region)

I_D

1mS

V_{GS}

$V_t=3V$