1a) The time duration is

$T_N = N \cdot T = N / f_s = 128/40 = \underline{3{,}2 \text{ ms}}$

1b) $k = N f / f_s = 128 \cdot \frac{5}{40} = 16$

The negative frequency -5 kHz is represented by the DFT index $N - k = 128 - 16 = 112$

That is at $\underline{k = 16 \text{ and } k = 112}$