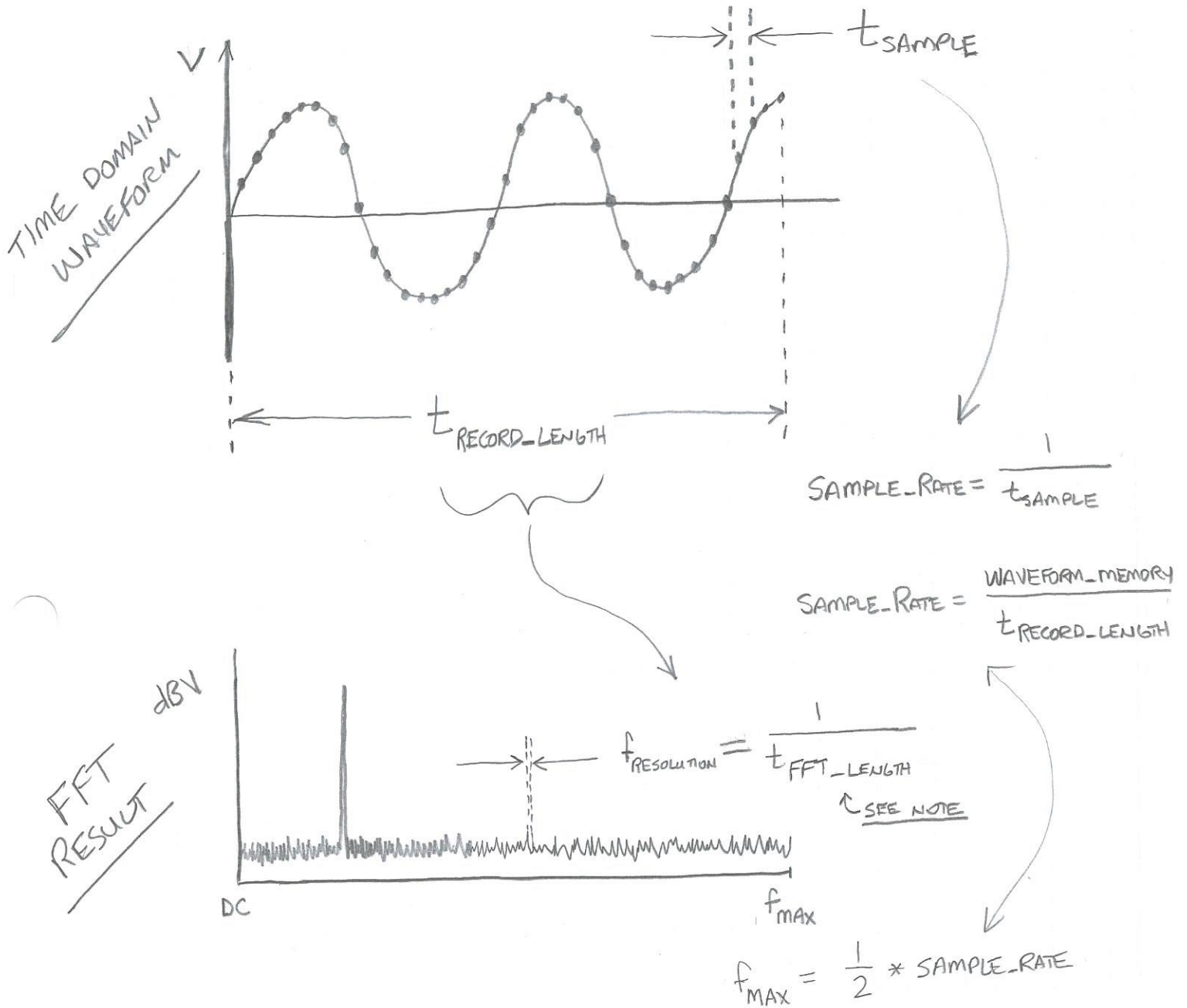


# REVIEW OF BASICS OF FFT

WZAEW



NOTE: FFT\_LENGTH DOESN'T ALWAYS EQUAL RECORD\_LENGTH

FFT ALGORITHM REQUIRES  $2^N$  NUMBER OF SAMPLES

## FFT ON A TEK TDS 2000 SERIES

$$\text{WAVEFORM\_MEMORY} = 2.5 \text{ K SAMPLES}$$

$$t_{\text{RECORD\_LENGTH}} = 10 \text{ DIVS} * \frac{\text{SEC}}{\text{DIV}}$$

$$\text{SAMPLE\_RATE} = \frac{2.5 \text{ K SAMPLES}}{10 * \frac{\text{SEC}}{\text{DIV}}}$$

FFT USES 2048 SAMPLES OUT OF 2500

$$t_{\text{FFT\_LENGTH}} = \frac{2048}{2500} * 10 * \frac{\text{SEC}}{\text{DIV}}$$

$$f_{\text{RESOLUTION}} = \frac{2500}{2048 * 10 * \frac{\text{SEC}}{\text{DIV}}}$$

$$f_{\text{RESOLUTION}} = \frac{0.122}{\text{SEC/DIV}}$$

$$f_{\text{MAX}} = \frac{1}{2} * \text{SAMPLE\_RATE}$$

$$= \frac{1}{2} * \frac{2500}{10 * \frac{\text{SEC}}{\text{DIV}}}$$

$$f_{\text{MAX}} = \frac{125}{\text{SEC/DIV}}$$