

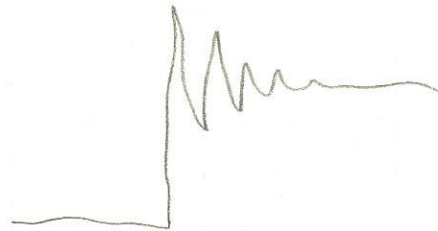
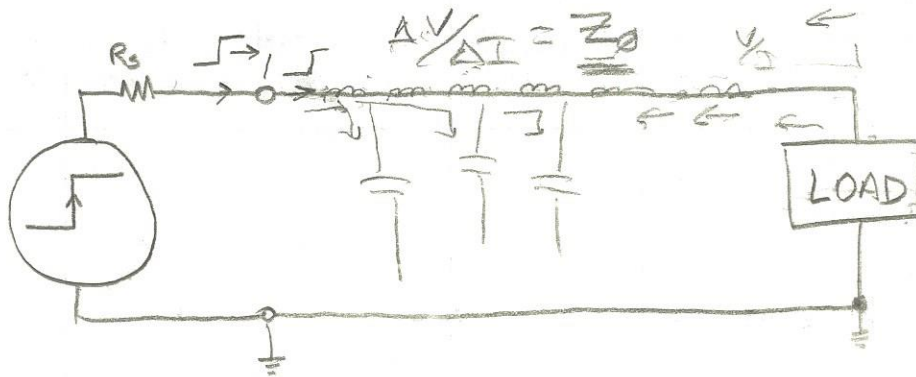
# TERMINATIONS : WHEN & WHY YOU NEED THEM

## SHORT ANSWERS

**WHY** : TERMINATIONS HELP TO MINIMIZE SIGNAL REFLECTIONS AND THE DISTORTION THEY CAN CAUSE ALONG A TRANSMISSION PATH.

**WHEN** : WHEN THE PROPAGATION DELAY DOWN THE TRANSMISSION PATH IS GREATER THAN 10-20% OR SO OF RISETIME OF A DIGITAL SIGNAL, OR WAVELENGTH OF AN RF SIGNAL.

## LONGER ANSWERS & EXAMPLES



# RF SIGNAL REFLECTION



- DEPEND ON YOUR LOCATION ALONG THE LINE, THE SUM OF THE SIGNAL + THE REFLECTION WILL ADD CONSTRUCTIVELY OR DESTRUCTIVELY.
- RESULT IS A "STANDING WAVE"
- SIGNAL AMPLITUDE WILL VARY DEPENDING ON YOUR POSITION ALONG THE LINE

13-782 500 SHEETS, FILLER 5 SQUARE  
42-382 100 SHEETS, EYE-GLASS 5 SQUARE  
42-382 100 SHEETS, EYE-GLASS 5 SQUARE  
42-389 200 SHEETS, EYE-GLASS 5 SQUARE  
42-382 100 RECYCLED WHITE 5 SQUARE  
42-389 200 RECYCLED WHITE 5 SQUARE  
Made in U.S.A.



# QUARTER - WAVELENGTH LINE

33 MHz

$$\lambda_{\text{FREE SPACE}} = \frac{300}{33} = 9.091 \text{ m}$$

$$\lambda_{\text{COAX}} = \lambda_{\text{F.S.}} \cdot 0.66 = 6 \text{ m}$$

(66% VELOCITY FACTOR)

$$\frac{\lambda_{\text{COAX}}}{4} = \underline{1.5 \text{ m}} \quad \text{OR} \quad \underline{4.92 \text{ FT}}$$