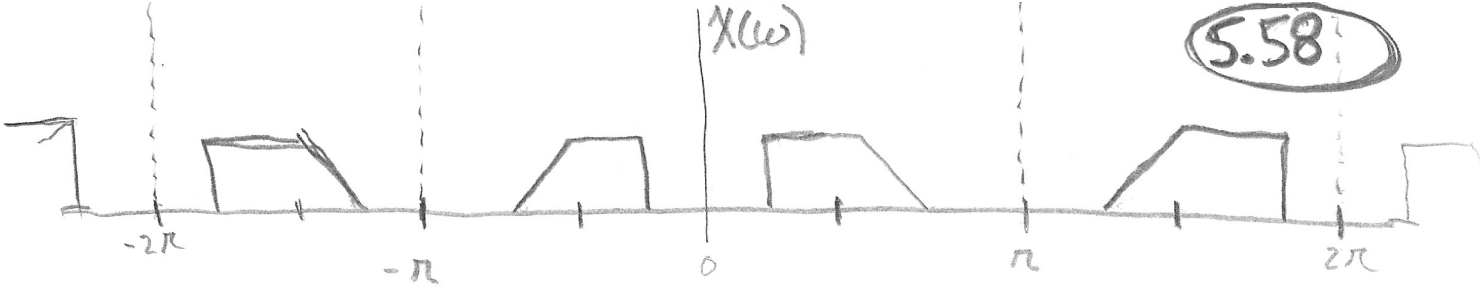
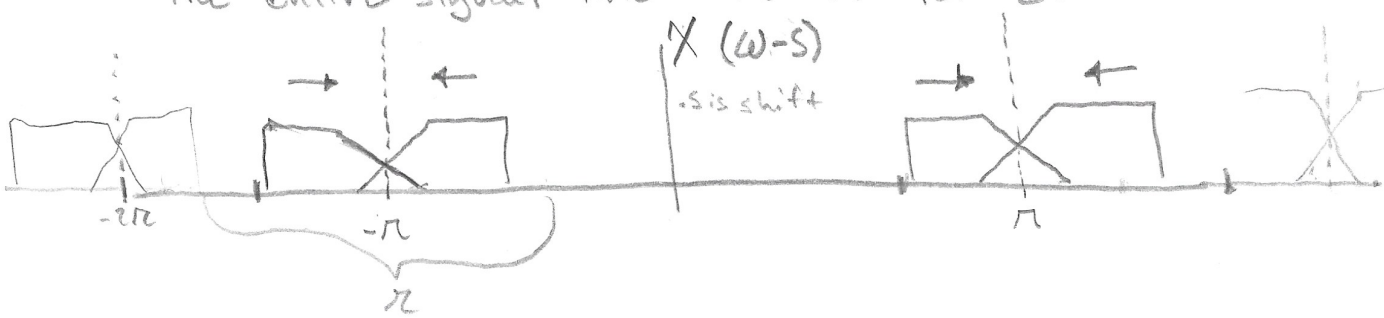
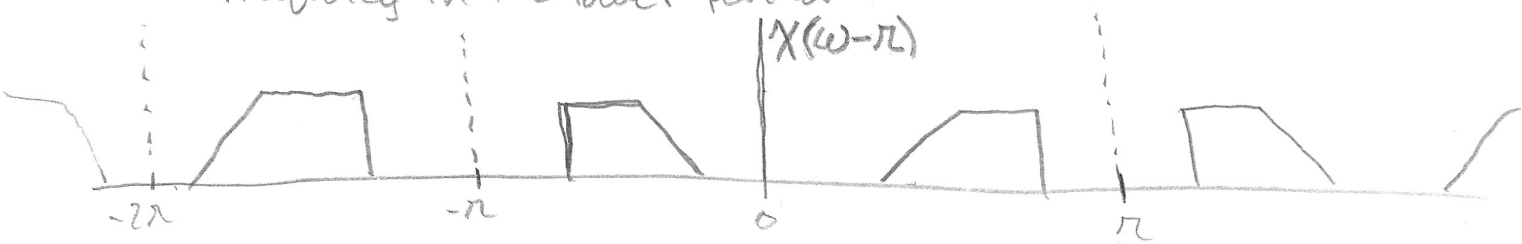


- By performing a frequency shift we can alias the entire signal into another period.



- If we shift by π (the entire period) then we push the lower frequencies of the higher period into the position of the higher frequency in the lower period



- So to acomplish this we need to perform a **frequency shift by π.**

Using transform tables we see: $X(\omega-\gamma) \Leftrightarrow e^{j\gamma n} X(n)$

$$X(\omega-\pi) \Leftrightarrow e^{j\pi n} X(n)$$

$$\boxed{X(\omega-\pi) \Leftrightarrow \cos(\pi n) X(n)}$$

- To reverse this action all we have to do is shift the above back to its starting frequency.

$$X(\omega-\pi+\pi) \Leftrightarrow \left(e^{j\pi n} X(n)\right) e^{-j\pi n}$$

$$X(\omega) \Leftrightarrow X(n)$$