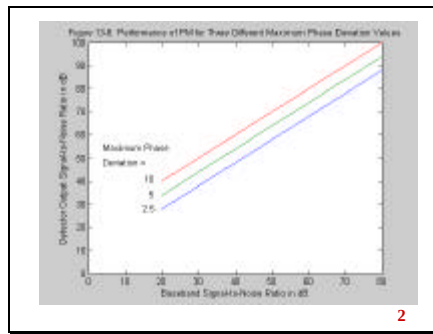


## Slide 1

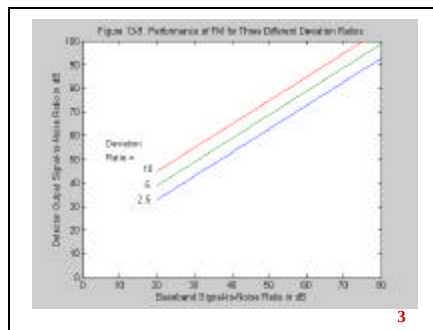
### Analog and Digital Communication System Comparisons

This short module will be most meaningful after completing the modules entitled "Analog Systems with Noise" and "Digital Systems with Noise". In this module, some of the results of these other modules will be reviewed and compared in various ways. It will be shown that there are conditions in which analog systems are superior to digital systems and vice-versa. Of course, the trend throughout the industry is toward the use of digital systems, but analog concepts still play important roles in the process.

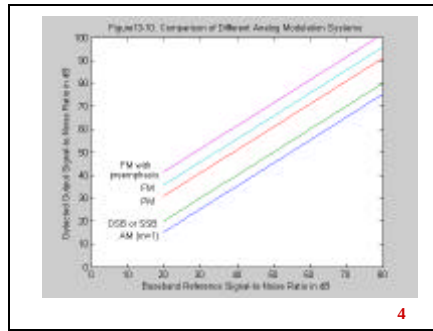
## Slide 2



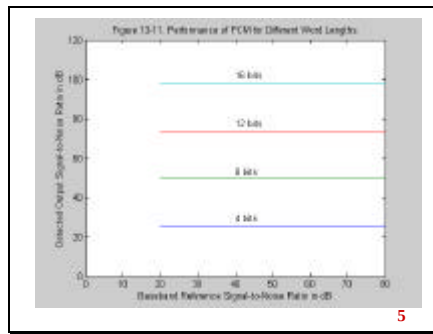
## Slide 3



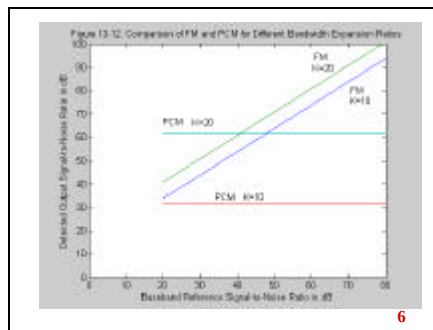
Slide 4



Slide 5



Slide 6



### Summary

- Among analog systems, FM with pre-emphasis usually provides the best performance in the presence of noise.
- Among digital systems, PCM performance is dependent on the number of bits utilized.
- As the number of bits increases, a greater S/N ratio is necessary to operate above threshold.
- Both analog and digital systems can be compared on the basis of the bandwidth expansion ratio.