Homework Ch. 14

1. A combination of an electric and magnetic field

2. Maxwell’s equations describe the strength of an electromagnetic field

3. The magnetic and electric fields have opposite polarity

4. The orientation of the conductor

5. Vertical

6. An antenna will receive as well as transmit at the operating frequency

7. dipole antenna

9. The length of a dipole is 1/2 the wavelength

17. The apparent signal strength increase over an isotropic antenna or dipole caused by the directivity of the antenna that comes from concentrating or focusing the signal into narrow beams.

24. doughnut shaped

Ch. 16

1. 1 to 30 GHz

2. more bandwidth, more complex circuits

3. more difficult to analyze; different measurement techniques; resistors, capacitors, and inductors act like LCR circuits; conventional semiconductors do not work owing to internal capacitances and long transit time; special, expensive vacuum tubes are used for power amplification; line-of-sight transmission differences; excessive signal reflection and absorption

5. L band

6. improved receiver selectivity, SSB, multiplexing, reduced FM deviation

18. high attenuation

19. 6ghz

23. T

89. x band

92. Doppler effect