16.6.2. Which one of the following statements concerning mechanical waves is false?

a) A wave carries energy from one place to another.
b) A wave is a disturbance that travels from one place to another.
c) The disturbance of particles of a medium may be in a direction that is perpendicular to the direction the wave is traveling.
d) Sound waves are purely longitudinal waves.

c) A wave carries particles of its medium from one place to another.

16.6.3. Which of the following properties do not affect the average transmitted power of a wave on a string?

a) frequency
b) Mass per unit length
c) speed of the wave
d) length
e) tension

16.9.3. According to the Principle of Superposition, how are two waves combined to produce a resultant wave?

a) The velocity vectors are added together.
b) The displacement of the two waves are added algebraically.
c) The amplitudes of the two waves are multiplied together.
d) Waves are always independent of each other and cannot be combined.

d) This is an example of the superposition of two waves resulting in exactly in phase interference.

e) This is an example of the superposition of two waves resulting in partially constructive interference.

16.10.1. Sine wave A has an amplitude of 0.5 m and sine wave B has an amplitude of 0.6 m. When waves A and B combine, the amplitude is 0.9 m. Which of the following statements concerning this observation is true?

a) This was an observation in error, since the superposition of these two waves cannot result in an amplitude larger than 0.6 m.
b) This was an observation in error, since the superposition of these two waves will always result in an amplitude of 1.1 m.
c) This is an example of the superposition of two waves resulting in exactly in phase interference.
d) This is an example of the superposition of two waves resulting in destructive interference.
e) This is an example of the superposition of two waves resulting in partially constructive interference.

16.11.2. What will occur in the superposition of two identical sine waves if they are shifted by (5/2)\(\lambda\), relative to one another?

a) The waves will interfere with each other destructively.
b) The waves will interfere with each other constructively.
c) The waves will travel in opposite directions.
d) One wave will travel faster than the other, but in the same direction.
e) Since the waves are out of phase, they do not interfere with each other.