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| **Physics 20 - Lesson 30**  **Two-Dimensional Waves – Answer Key**  / 70 | | | |
| 1)  /1 | Angle of Incidence = Angle of Reflection | | |
| 2)  /1 | When a wave passes from one medium into another, its speed, wavelength and angle to the normal change. | | |
| 3)  /2 | Low speed > High Speed | | |
| 4)  /4 | a) Wave slows down  Wavelength is shorter  b) Wave is faster  Wavelength is longer | | |
| 5)  /2 | 1) The energy is being spread over a larger area  2) Energy is lost as heat as it travels through a medium | | |
| 6)  /2 |  | | |
| 7)  /2 | X          Y | | |
| 8)  /3 | X            Y  Ray and surface Y =  Angle of Reflection from Y = | | |
| 9)  /3 |  | | |
| 10)  /6 | fast  slow  fast | slow  fast  faster | fast  slow  faster |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 11)  /6 | Fast Slow | | | Fast Slow | | |
| Slow Fast | | | Slow Fast | | |
| Fast  Slow | | | Fast Slow | | |
| 12)  /3 | Two way time = 2.50s | | |  | | |
| 13)  /6 | v = 1150m/s  3.25s 4.26s | | | Bottom  Sub | | |
| 14)  /3 |  |  | | | | |
| 15)  /3 |  |  | | | | |
| 16) |  | | | | | |
| /3 |  | | | | | |
|  |  | | | | | |
| 17)  /12 | a)   Destructive  b)   Constructive  c)   Constructive  d)   Destructive | | | | | |
| 18)  /8 | a) | | b) | | c) | d) |