|  |  |  |  |
| --- | --- | --- | --- |
|  | **Physics 20 - Lesson 13**  **Projectiles – Answer Key**  Possible 90 / 57 | | |
| 1)  /2 | The bullet fired horizontally has an initial vertical velocity of zero as does the bullet being dropped. The horizontal motion does not effect the vertical acceleration, therefore both bullets hit the ground at the same time. | | |
| 2)  /2 | The dart leaves the rifle at the same instant that the monkey begins to fall. Since both the dart and the monkey fall at the same rate, the hunter should aim directly at the monkey in order to hit it. | | |
| 3)  /7 | 828.1m | Vertical (time) | Horizontal |
| 4)  /7 |  | Horizontal (time) | Vertical (height) |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5)  /11 | b) | | | | a)  c) Total time =  d) | | | | |
| 6)  /11 | 60 | | Vertical    Horizontal | | | | |  | |
| 7)  /5 | 80m  x  Target  350km/h | | |  |  | | --- | --- | | x | y | |  |  | | | | | | | |
| 8)  /7 |  | | |  |  | | --- | --- | | a) How high |  | |  |  | | b) How far away |  | |  |  | | | | | | | |
| 9)  /5 |  | a) | |  | | | | | b) |
| 10)  bonus  /10 |  | | Vertical (time) Horizontal | | | |  | | |
| 11)  bonus  /10 | 125m | | | | | | | | |
| Vertical (time) | | | | | | Horizontal (range) | | |
| 12)  Bonus  /13 | fl00235_%5b1%5d  5m | | | | | | | | |
| Vertical (time) | | | | | Horizontal (range) | | | |