

Planet Holloway **websheet 3.5**

AP Physics C Chapter 3

You may print this out and write on it or work on your own paper.

Show all work.

1. A package falls from a plane travelling at 17 m/s horizontally and falls for 5 seconds before hitting the ground. How far did the package travel horizontally in that 5 seconds?
2. In the problem above, how far does the package fall vertically in the 5 seconds?
3. Tammy throws a water balloon horizontally from a building 15 m high. If she is aiming for a freshman that is standing 6 meters from the building, with what velocity must she throw the balloon?
4. An escalator at the mall moves with a velocity of 1.5 m/s at an angle of 40° . What are your horizontal and vertical components of velocity while on the escalator?
5. Hector kicks a ball horizontally off his balcony on his top floor apartment at 8 m/s. What is the speed of the ball 2 seconds later? Assume the ball can fall for more than two seconds and remember that the horizontal and vertical components must be combined for the total speed.

¡Bonus!

6. While playing lawn darts with his friend, Jack notices that when he throws a dart up at 60 degrees it travels 11 meters. How high did the dart travel?

Answers:

1. 85 m
2. 125 m
3. 3.46 m/s
4. 0.96 m/s vertically, 1.15 m/s horizontally
5. 21.54 m/s
6. 4.76 m