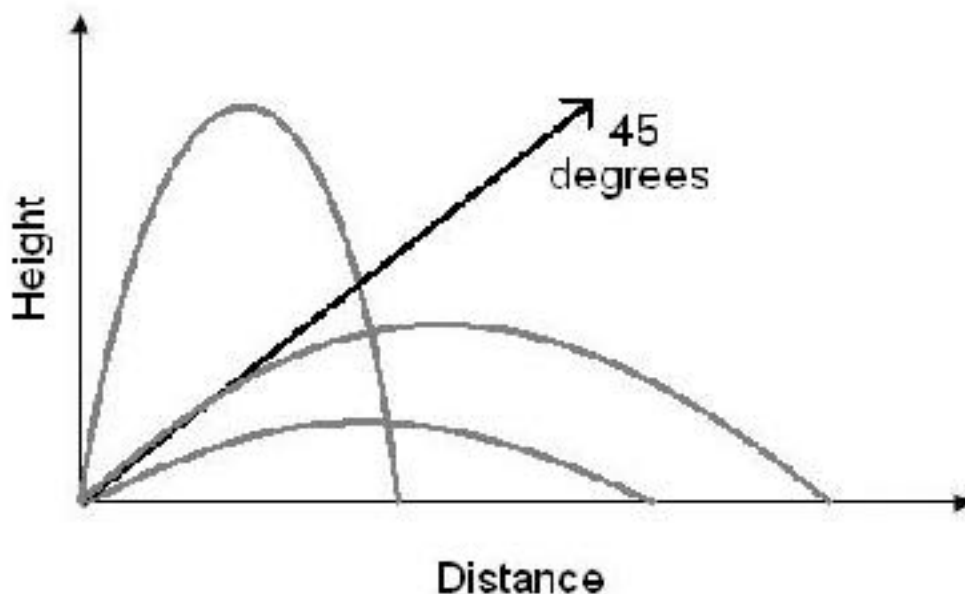
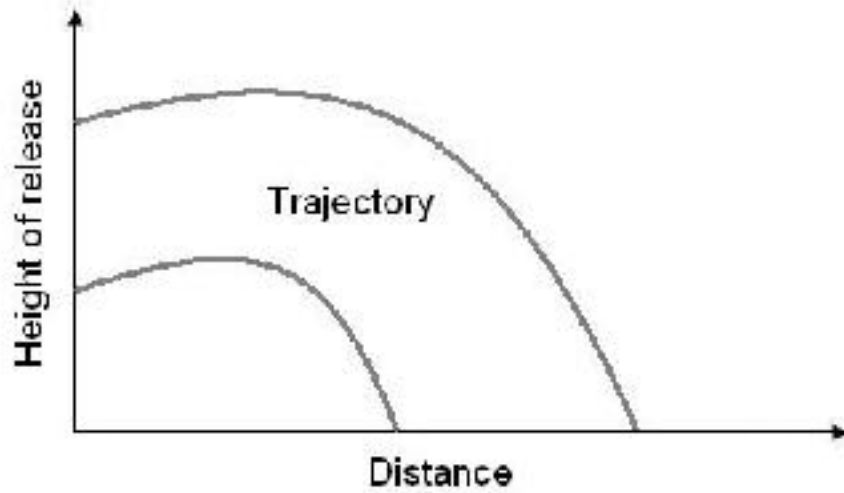


Projectile Motion and Launch Angles



Extension: In sporting situations the angle of release is often lower, around 35 degrees to 45 degrees. This is because the _____ of the body and because the takeoff point is usually higher than the landing point, e.g., long jump.

1. The higher the _____, the greater the _____ covered in flight. This is because the higher the projectile is released; the longer it will be in the air. The _____ of the trajectory will be acting on the projectile for longer. An example of this is throwing a javelin. In javelin, to gain more _____ athletes will hold the javelin up _____ to create a greater _____.



There is a relationship between height of release and angle of release.

As the height of release _____, the angle of release _____.

As the height of release _____, the angle of release _____.

For example, when shooting, basketball players will have a lot lower angle of release than shorter basketball players to shoot the ball at the same hoop height.

2. The amount and direction of _____ acting on a projectile will directly affect the _____ a projectile will travel. The reason for this is the _____ acting on the ball.

Extension example: In a tennis shot, _____ gives poorer distance compared to _____. A topspin shot creates a region of high pressure on top of the ball, and a region of low pressure below. Air moves from a region of high to low pressure and as a consequence the ball will dip suddenly, decreasing the vertical component of the trajectory. The opposite is true for backspin.