Choose the best answer for each question.

1. A boy riding on a bus that is moving at a constant velocity wants to toss a ball up and catch it again. From his perspective, the boy should:
   1. Toss the ball straight forward
   2. Toss the ball slightly towards the front of the bus
   3. Toss the ball straight up
   4. Toss the ball slightly towards the back of the bus
2. A bullet is fired horizontally above a level surface. Another bullet is dropped from the same height at the moment the gun is fired. Neglecting air resistance and the curvature of the earth, which bullet hits the ground first?
   1. The dropped bullet
   2. The fired bullet
   3. Both bullets hit the ground at the same time
   4. It depends on the speed of the fired bullet.



1. An airplane is flying horizontally over level ground to deliver supplies to refugees. When the supplies are dropped, which path best represents the path of the supplies? (neglecting any effect of air resistance)
   1. A
   2. B
   3. C
   4. D
2. The supply airplane now wants to deliver a package to a speeding motorboat. The airplane and the boat are both moving with the same velocity. In order for the package to land on the boat, the plane must be flying (neglecting any effect of air resistance)
   1. Significantly behind the boat
   2. Slightly behind the boat
   3. Directly over the boat
   4. Slightly in front of the boat
3. A target is 80 m away. An arrow fired horizontally at 6 m/s travels a distance of 40 m, missing the target. With what speed must the arrow be fired to reach the target?
   1. 6 m/s
   2. 9 m/s
   3. 12 m/s
   4. 13.3 m/s
   5. 36 m/s
4. Which graph best represents the horizontal component of velocity versus time for a projectile?



1. Which graph best represents the vertical component of velocity versus time for a projectile?

