Chapter 6 • Motion in Two Dimensions

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THE TRAJECTORY OF A PROJECTILE

1. At what point is the magnitude of the ball’s velocity vector the smallest? Why?

2. What can be said about the relationship between the vertical component of the ball’s velocity at the moment it leaves the ground and the moment it returns to the ground?

3. What can be said about the relationship between the horizontal component of the ball’s velocity at the moment it leaves the ground and the moment it returns to the ground?

4. For each graph below, draw a line that represents the appropriate position of the ball as a function of time.
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All numerical answers have been rounded to the correct number of significant figures.

1. The magnitude of the ball’s velocity is the smallest at the ball’s maximum height because the magnitude of the vertical component of the ball’s velocity is zero.

2. The two velocities are equal in magnitude and opposite in direction.

3. The two velocities are equal in magnitude and in direction.

4.