**PFC2 Chapter 6 Section 1 Guided Reading**

1. A displacement vector describes the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the starting and ending points of an object’s motion.
2. A cat walks 7 meters east and 24 meters north. Draw the displacement vector on graph paper. Use a protractor to measure its angle. Then describe the displacement vector as a magnitude-angle pair and as an (*x,y*) pair.
3. If the displacement vector described above were drawn on a map, would this vector show you where to look for the cat’s footprints? Explain.
4. Do the Your Turn problems on page 135. Show your work. Check your solutions against the answers provided at the end of the chapter.
5. What is the symbol used to represent a velocity vector?
6. The magnitude of a velocity vector is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the object.
7. Do the Your Turn problems on page 136. Show your work. Check your solutions against the answers provided at the end of the chapter.
8. Define *projectile*.
9. The path a projectile follows is called its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. The horizontal distance a projectile travels in the air before touching the ground is known as the projectile’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. A projectile’s velocity vector at any one instant has both a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (vx) and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (vy) component.
12. If the vertical component of a projectile’s velocity increases, how is the horizontal component affected by this change?
13. Write the equation for vertical velocity of projectile motion. Label each variable in the equation as shown on page 138.
14. Write the equation for horizontal distance of projectile motion. Label each variable in the equation as shown on page 139.
15. Write the equation for vertical distance of projectile motion. Label each variable in the equation as shown on page 139.
16. Name the two conditions necessary for the vertical distance equation in question 16 to work.
17. If a ball is launched horizontally (at zero degrees) so that it rolls along the ground, what is its range?
18. If the force remains constant at each launch, what is the angle of launch that gives a projectile the greatest range? Why?
19. A ball launched at 55 degrees will have the same range as a ball launched with the same force at what other angle?
20. Do the Your Turn problems on page 141. Show your work. Check your solutions against the answers provided at the end of the chapter.