Chapter 3 Pretest (+1) Name _____

1. In Moncton, New Brunswick, each high tide in the Bay of Fundy produces a large surge of water known as a tidal bore. If a riverbed fills with this flowing water that travels north with a speed of 1.0 m/s, what is the resultant velocity of a puffin who tries to swim east across the tidal bore with a speed of 4.0 m/s?

2. Lynn is driving home from work and finds that there is road construction being done on her favorite route, so she must take a detour. Lynn travels 5 km north, 6 km east, 3 km south, 4 km west, and 2 km south. a) draw a vector diagram of the situation. b) What is her displacement? Solve graphically. c) What total distance has she covered?

3. Dwight pulls his sister in her wagon with a force of 65 N at an angle of 50.0° to the vertical. What are the horizontal and vertical components of the force exerted by Dwight?

4. In many locations, old abandoned stone quarries have become filled with water once excavating has been completed. While standing on a 10.0 m high quarry wall, Clarence tosses a piece of granite into the water below. If Clarence throws the rock horizontally with a velocity of 3.0 m/s, how far out from the edge of the cliff will it hit the water?

5. Len is running to school and leaping over puddles as he goes. From the edge of a 1.5 m long puddle, Len jumps 0.20 m high off the ground with a horizontal velocity component of 3.0 m/s in an attempt to clear it. Determine whether or not Len sits in school all day with wet socks on.

6. A long jumper leaves the ground at an angle of 20° to the horizontal and at a speed of 11 m/s. a) How far does he jumps? b) What is the maximum height reached?

7. Tom the cat is chasing Jerry the mouse across a table surface 1.5 m high. Jerry steps out of the way at the last second, and Tom slides off the edge of the table at a speed of 5 m/s. where will Tom strike the floor and what velocity will he have just before he hits?

8. Over the course of about six weeks in 1992, Akira Matsushima, from Japan, rode a unicycle more than 3000 mi across the United States. Suppose Matsushima is riding through a city. If he travels 250.0 m east on one street, then turns counterclockwise through a 120° angle and proceed 125.0 m northwest along a diagonal street, what is his net displacement?