

**4.2 Two-Dimensional Motion Problems**

- 1) A car is driven 125.0 km due west, then 65.0 km due south. What is the magnitude and direction of its displacement? Solve this problem both graphically and mathematically, and check your answers against each other.
- 2) Two shoppers walk from the door of the mall to their car, which is 250.0 m down a lane of cars, and then turn  $90^\circ$  to the right and walk an additional 60.0 m. What is the magnitude and direction of the displacement of the shoppers' car from the mall door?
- 3) A hiker walks 4.5 km in one direction, then makes a  $45^\circ$  turn to the right and walks another 6.4 km. What is the magnitude and direction of her displacement?
- 4) An ant is crawling on the sidewalk. At one moment, it is moving south a distance of 5.0 mm. It then turns south west and crawls 4.0 mm. What is the magnitude and direction of the ant's displacement?