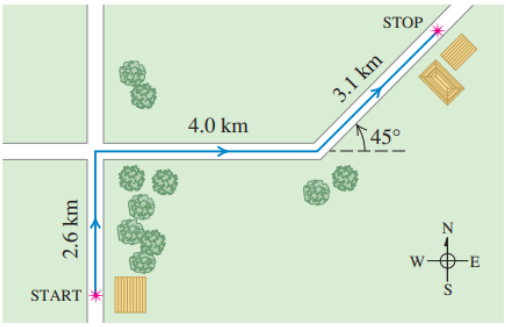
Exercise 1.27

A postal employee drives a delivery truck along the route shown in Fig. E1.27. Determine the magnitude and direction of the resultant displacement by drawing a scale diagram. (See also Exercise 1.34 for a different approach to this same problem.)

Figure **E1.27**



Solution

Use a ruler to determine the magnitude of the displacement vector along with the following formula.

$$\frac{4.0}{x} = \frac{y}{z}$$

Measure and plug in the length of the 4.0 km-vector for x. Measure and plug in the length of the displacement vector for z. Then solve the equation for y, the magnitude.

$$y = 4.0\left(\frac{z}{x}\right) \approx 7.8 \text{ km}$$

Use a protractor to determine the angle above the horizontal (38°).