7.3 Key Concepts 2 Slope of a Distance Versus Time Problem Worked Example

Example: Sandy was 120 km from Windsor on a trip to Toronto after 1.5 h. She increased the speed of the car, and at a total time of 3.5 h was 320 km from Windsor. Find the speed of the car during this part of the trip.

Solution:

$$\begin{aligned} m &= \frac{d_B - d_A}{t_B - t_A} \\ &= \frac{320 - 120}{3.5 - 1.5} \\ &= \frac{200}{2.0} \\ &= 100 \text{ km/h} \end{aligned}$$

The speed was 100 km/h.

Practice:

1. A ship passing through the Welland canal was 5.0 km from the start after 0.75 h. The pilot increased the speed, and was 20 km from the start after a total time of 2.25 h. What was the speed of the ship during this part of the trip?

2. Alex was 4.5 km from home after riding his bicycle for 15 min. A head wind came up, slowing him down. At a total time of 1.75 h, he was 27.0 km from home. What was his speed on this part of the trip?

Answers: 1. 10 km/h 2. 15 km/h.