Page 117 – Course Book

7 Look at photo D.

a| How fast is the boat moving relative to the riverbank?

b| If the river was flowing in the opposite direction to that shown, how fast would the boat be moving relative to the riverbank?

7 **a** 5 m/s + 2 m/s = 7 m/s

b 5 m/s – 2 m/s = 3 m/s

Page 118/119 – Course Book

1 Calculate how far Samina travels in the second half hour of her ride.

1 speed = 8 km/h, time = 0.5 hour; distance = 8 km/h × 0.5 hour = 4 km

2 Calculate how long Samina took to complete the last part of her ride.

2 speed = 24 km/h, distance = 6 km;

time = distance/speed = 6 km ÷ 24 km/h = 0.25 hour (or 15 minutes)

3 Use your answers to questions 1 and 2 to draw a distance–time graph to show Samina's ride. Your vertical axis should go up to 20 km and your horizontal axis should go up to 1.5 hours. Remember to give your graph a title.

3 Graph with suitable title and scales, with axes labelled.

Line joining points: (0, 0), (0.5, 8), (1.0, 12), (1.25, 18)

4 Calculate the gradient of the following lines on graph B:

a | A–B b | D–E.

4 **a** vertical difference = 20 – 0 = 20 m
horizontal difference = 4 – 0 = 4 s
gradient = 20 m ÷ 4 s = 5 m/s
b vertical difference = 80 – 60 = 20 m
horizontal difference = 10 – 8 = 2 s
gradient = 20 m ÷ 2 s = 10 m/s

5 Look at graph D. At what time is Samina:

a | speeding up

b | slowing down?

5 **a** 1 hour **b** 0.5 hours

6 Use the information on this page and your answers to question 4 to draw a speed–time graph for the toy car. Your vertical axis should go up to 20 m/s. The horizontal axis will be the same as graph B.

6 Graph with suitable title and scales, with axes labelled.

Line joining points: (0, 5), (4, 5), (4, 20), (6, 20), (6, 0), (8, 0), (8, 10), (10, 10)

Students may join each horizontal line with sloping lines, as on figure D in the Student Book.