1 Andy cycles a distance of 30 km at an average speed of 24 km/h.
He then runs a distance of 12 km at an average speed of 8 km/h.

Work out the total time Andy takes.
Give your answer in hours and minutes.

$$\text{Time taken} = \frac{\text{Distance}}{\text{speed}}$$

$$\text{Cycling time} = \frac{30 \text{ km}}{24 \text{ km/h}}$$

$$= 1.25 \text{ h}$$ (1)

$$\text{Running time} = \frac{12 \text{ km}}{8 \text{ km/h}}$$

$$= 1.5 \text{ h}$$

$$\text{Total time} = 1.25 \text{ h} + 1.5 \text{ h}$$ (1)

$$= 2.75 \text{ h}$$

$$\approx 2 \text{ hr } (0.75 \text{ hr} \times 60) \text{ min}$$

$$= 2 \text{ hr } 45 \text{ min}$$ ✱(1)

2 ..... hours 45 ..... minutes

(Total for Question 1 is 3 marks)

2 Jessica runs for 15 minutes at an average speed of 6 miles per hour.
She then runs for 40 minutes at an average speed of 9 miles per hour.

It takes Amy 45 minutes to run the same total distance that Jessica runs.

Work out Amy's average speed.
Give your answer in miles per hour.

Find the distance Jessica runs:

15 minutes = 0.25 hours (÷60)

First distance = speed × time
= 6 × 0.25
= 1.5 miles (1)

40 minutes = $\frac{2}{3}$ hours (÷60)

Second distance = speed × time
= $9 \times \frac{2}{3}$
= 6 miles

In total Jessica runs 1.5 + 6 = 7.5 miles (1)
∴ Amy runs 7.5 miles

Amy's average speed = $\frac{\text{distance}}{\text{time}} = \frac{7.5}{0.75} = 10$ (1)

45 minutes = 0.75 hours (÷60)

10 (1) ..... miles per hour

(Total for Question 2 is 4 marks)