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.

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

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

= 1.25 h (1)

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

= 1.5 h

Total time = 1.25 h + 1.5 h (1)

= 2.75 h

≈ 2 hr (0.75 hr × 60) min

= 2 hr 45 min ✱(1)

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

(Total for Question 1 is 3 marks)

2 Jane bought a new car three years ago.

At the end of the first year the value of the car had decreased by 12.5%
The value of the car then decreased by 10% each year for the next two years.

At the end of the three years, the value of the car was £17010

Work out the value of the car when Jane bought it three years ago.

Let the valve of the car when Jane bought it 3 years ago be £x.

$100 - 12.5 = 87.5$

After 1 year: $0.875 \times x = 0.875x$ (1)

After 2 years: $0.9 \times 0.875x$

After 3 years: $0.9^2 \times 0.875x$

$0.9^2 \times 0.875x = 17010$ (1)

$$x = \frac{17010}{0.9^2 \times 0.875}$$

$x = 24000$ (1)

£ 24,000

(Total for Question 2 is 3 marks)

3 A solid cuboid is made of metal.

The metal has a density of $9\,g/cm^3$
The volume of the cuboid is $72\,cm^3$

Work out the mass of the cuboid.

density = $\frac{\text{mass}}{\text{volume}}$

mass = density × volume

= $9\ gcm^{-3} \times 72\ cm^3$ (1)

= 648 g (1)

648 ..... g

(Total for Question 3 is 2 marks)