Exercise 3

Paper 2 style · Graphic display calculator

3 5 marks SL 2.9 · 2.10 ●●○ Typical

The value of a car, in euros, t years after it is bought is modelled by $V(t) = 24\,000 \times 0.82^t$.

(a) Write down the value of the car when it is bought. **[1]**

(b) Find the value of the car after 5 years. **[1]**

(c) Write down the percentage of its value the car loses each year. **[1]**

(d) Find the time after which the car is worth less than 5000 euros. **[2]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

24 000 euros — A1

Total 1 mark

MARKSCHEME (b)

8900 euros (8897.75…) — A1

Total 1 mark

MARKSCHEME (c)

18 % — A1

Total 1 mark

MARKSCHEME (d)

$24\,000 \times 0.82^t = 5000$ — (M1)

$t = 7.90$ years (7.90430…) — A1

Total 2 marks