Exercise 1

Paper 2 style · Graphic display calculator

1 5 marks SL 1.4 ●●○ Typical

Ben invests 8000 euros in an account that pays a nominal annual interest rate of 2.8 %, compounded quarterly.

(a) Find the value of the investment after 6 years, to the nearest euro. **[2]**

(b) Find the number of complete years needed for the value to exceed 10 000 euros. **[3]**

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)

$8000\left(1+\frac{2.8}{400}\right)^{24}$ **(M1)**

9458 euros $(9457.96\ldots)$ **A1**

Total 2 marks

Note Or the finance solver: $N = 24$, $I\% = 2.8$, $PV = -8000$, $P/Y = C/Y = 4$.

MARKSCHEME (b)

$8000\left(1+\frac{2.8}{400}\right)^{4n} > 10\,000$ **(M1)**

$n > 7.997$ **(A1)**

8 years **A1**

Total 3 marks

Note Or after 7 years 9726, after 8 years 10 001.