Investing and borrowing - Practice test 1

10 questions | 56 marks | 70 minutes

An original mixed topic paper. Show calculations, label rates and periods, and explain conclusions using the supplied hypothetical financial rules. Round final monetary answers to cents unless a minimum deposit is requested.

Equivalent correct methods earn the corresponding marks.

1. A coat has a marked price of AUD 180. The store gives a 15% discount. [4 marks]

(a) Find the discounted price. [2 marks]

$180\times0.85=153$.

Answer: AUD 153.00

(b) The store then adds a AUD 9 delivery fee. Find the total and the saving compared with the original marked price. [2 marks]

$153+9=162$.

$180-162=18$.

Answer: AUD 162 total; AUD 18 saving

2. A savings statement has an opening balance of AUD 840, a deposit of AUD 200, a withdrawal of AUD 125, AUD 2.20 interest and a AUD 3 fee. [4 marks]

(a) Find the closing balance. [2 marks]

$840+200-125+2.20-3=914.20$.

Answer: AUD 914.20

(b) Another withdrawal is later found. The corrected closing balance is AUD 864.20. Find the missing withdrawal. [2 marks]

$914.20-864.20=50$.

Answer: AUD 50.00

3. AUD 4500 is invested at 4% simple interest per year. [6 marks]

(a) Find interest earned in 18 months. [3 marks]

t=1.5;I=4500×0.04×1.5=270.

Answer: AUD 270.00

(b) How long would it take to earn AUD 720 interest at this rate? [3 marks]

t=720/(4500×0.04)=4.

Answer: 4 years

4. AUD 3000 is invested for 3 years at 5% per year. [6 marks]

(a) Find the final value with annual compounding. [3 marks]

A=3000(1.05)^3=AUD 3,472.88.

Answer: AUD 3,472.88

(b) Find the extra interest over simple interest for the same term. [3 marks]

Simple final=3000(1+0.05×3)=3450.

Difference=compound final−3450.

Answer: AUD 22.88

5. A club needs AUD 7000 in 4 years. A single deposit earns 4.5% compounded annually. [6 marks]

(a) Find the present value to the nearest cent. [3 marks]

PV=7000/(1.045)^4.

Answer: AUD 5,869.93

(b) State the minimum deposit that meets the target and explain the rounding. [3 marks]

Round the unrounded present value upward to cents.

Rounding downward produces a future amount below 7000.

Answer: AUD 5,869.93

6. An account quotes 6% nominal annual interest compounded monthly. [6 marks]

(a) Find its effective annual rate to 3 decimal places. [3 marks]

i=0.005;effective=1.005^12−1.

Answer: 6.168%

(b) Would 6.1% compounded annually give greater annual growth, ignoring fees? [3 marks]

Compare effective annual rates, not nominal labels.

Answer: No;6.1% is below 6.168%.

7. For one year, account A pays 3% simple interest without fees. B pays 4% simple interest and charges AUD 30 annually. [6 marks]

(a) Find the starting balance at which final values are equal. [3 marks]

1.03 P=1.04 P−30.

0.01 P=30.

Answer: AUD 3,000.00

(b) Which account gives more on AUD 1800? Give both final balances. [3 marks]

A=1800×1.03.

B=1800×1.04−30.

Answer: A: AUD 1854; B: AUD 1842. A gives AUD 12 more.

8. Mia buys 120 shares at AUD 9 with AUD 18 brokerage. She later receives a AUD 0.30 dividend per share and sells at AUD 9.80 with AUD 18 brokerage. [6 marks]

(a) Find the net profit. [3 marks]

Purchase=1080+18=1098.

Receipts=1176−18+36=1194.

Profit=96.

Answer: AUD 96.00

(b) Find ROI to 2 decimal places. [3 marks]

96/1098×100=8.743...%.

Answer: 8.74%

9. AUD 8000 earns 5% simple interest for one year. A supplied 25% tax applies only to the interest. Prices rise 2% over the year. [6 marks]

(a) Find the after-tax closing balance. [3 marks]

Interest=400;tax=100.

8000+300=8300.

Answer: AUD 8,300.00

(b) Find the real percentage gain to 3 decimal places. [3 marks]

Net nominal factor=8300/8000=1.0375.

Real factor=1.0375/1.02.

Answer: 1.716%

10. A simplified AUD 1800 loan charges 1% interest each month before a AUD 250 month-end repayment. [6 marks]

(a) Find the balance after two months. [3 marks]

B1=1800×1.01−250=1568.

B2=1568×1.01−250=1333.68.

Answer: AUD 1,333.68

(b) Explain why subtracting two repayments from the original loan before calculating interest gives a different answer. [3 marks]

Each month interest applies to that month’s opening balance, then payment is subtracted.

Answer: It changes the timing and incorrectly reduces the amount earning interest in the first month.