VAT, discounts and bills

A discount is based on the original price. VAT is based on the price before VAT.

A €200 item is reduced by 10%, then 23% VAT is added. Find the bill.

$200 \times 0.90 = 180$	After the discount, 90% remains.
$180 \times 1.23 = 221.40$	Include the price plus the VAT.

€221.40

Remember

Use the rate given in the question. For a utility bill add the fixed charge to units × rate before applying any tax specified.

Profit, mark-up and margin

Mark-up and margin use different starting amounts.

An item costs €80 and sells for €100. Find the mark-up and margin.

$100-80=20$	Profit = selling price minus cost price.
$\frac{20}{80}\times 100=25$	Mark-up divides by cost price.
$\frac{20}{100}\times 100=20$	Margin divides by selling price.

25% mark-up; 20% margin

Remember

For a loss percentage, divide the amount lost by the cost price.

Compound interest

Each year, apply the multiplier to the new balance.

Find the value of €500 after 3 years at 4% compound interest.

$1+0.04=1.04$	Add the interest rate to 1.
$500(1.04)^3=562.432$	Apply the multiplier three times.

€562.43

Remember

Interest earned is final balance minus original amount: €62.43.

Income tax and net pay

Use the single rate and the deductions stated in the question.

Gross pay is €500. Tax is 20%, with a €30 tax credit. Other deductions are €22. Find net pay.

$0.2(500)=100$	Calculate tax before the credit.
$100-30=70$	The tax credit reduces the tax.
$500-70-22=408$	Subtract tax and other deductions from gross pay.

€408

Remember

These are practice figures, not current tax rules.

Currency and value for money

Write the direction of the exchange rate. Compare prices for equal quantities.

At €1 = £0.85, how many euro does a £68 item cost?

$0.85x = 68$	Each of the x euro buys £0.85.
$x = 68 \div 0.85$	Divide to convert pounds back to euro.
€80	

> **Remember**
> For unit value, €3.30 for 750 g costs €4.40 per kg; €4.20 for 1 kg is cheaper.

Euro change versus percentage change

The larger euro change need not be the larger percentage change.

Plan A rises from €30 to €36. Plan B rises from €60 to €69. Which rises more by each measure?

$36-30=6,\quad 69-60=9$	B rises by more euro.
$\frac{6}{30}\times 100=20,\quad \frac{9}{60}\times 100=15$	Divide each change by its own starting price.

B by amount; A by percentage.

Remember

Common mistake: comparing the percentage changes using the final prices as the denominators.

JUNIOR CYCLE HIGHER LEVEL · CHAPTER PRACTICE

Financial Maths

Try the questions before opening the separate answer key. Show one step per line.

8.1 · Fluency

A €160 item has 23% VAT added. Find the total.

8.2 · Variation

A shop pays €60 and sells for €80. Find the mark-up and margin.

8.3 · Choose a method

A saver puts €900 into an account at 3% compound interest. Find the balance after two years.

Check your work: are the sign, units and level of accuracy appropriate?