

Percentage Increase & Decrease

- Always treat the original quantity as 100%
- When a quantity has been <u>increased</u> by a given percentage, the outcome is <u>larger</u> than the original.
- So if a quantity has been increased by 15%, it becomes 100% + 15% = 115% of the original amount.



• Your Casio calculator has a % button, above the (button. So to increase £120 by 15% you would type:

- When a quantity has been *decreased* by a given percentage, the outcome is *smaller* than the original.
- So if a quantity has been decreased by 12%, it becomes 100% 12% = 88% of the original amount.



• So to decrease 245kg by 12% you would type:

Intermediate Tier Numeracy PPQs

- 1.
- (a) You will be assessed on the quality of your organisation, communication and accuracy in writing in this part of the question.



Gemma bought a tablet last year for £240. She sold it to a friend after a year for 35% less than she paid for it.

She sees a new tablet on sale for £365 with a special offer of '20% off'. Gemma decides to use the money she has from selling her old tablet towards buying this new one.

How much extra will Gemma have to pay towards the new tablet using the special offer? You must show all your working [3]

[8]

- Jane and Tomos own a sandwich business.
 - (a) They decide to price sandwiches individually each morning. At 3 p.m. any unsold sandwiches are reduced by 45%. Any sandwiches still unsold by 4:30p.m. are reduced by a further 20%.

Jane says

Why not reduce sandwiches by 65% at 4:30p.m.; it works out the same.

Tomos disagrees with Jane.

Using multipliers, show that Jane is incorrect. [4]

Reverse Percentages (Grade B)

At Intermediate Tier you need to look carefully at the information in a question to see if you are being to find the increased/decreased value (Grade E/D) or being asked to **find the original amount** following an increase/decrease

Once this has been spotted, the solution is straightforward using the reverse number machine idea:

• In a sale, a pair of jeans has been reduced by 20%. If the sale price was £64, how much were the jeans to buy before the sale?

• Following a 3% pay rise, Sally was earning £46 350 pa. How much was she earning before the increase?

Intermediate Tier Numeracy PPQ

3.	(b)	The television was reduced in the sale by 26% of its original price. It cost Marta £710.40 in the sale. What was the original price of the television? [2]	
		Original price £	
			1

Compound Percentages (Grade B)

• If a quantity is being repeatedly increased/decreased over time, for example money earning annual interest payments in a bank account or a car losing value as it gets older, then the

% multiplier is raised to the power of the time period

Sounds complicated, but it isn't!

• A bank pays 1.8% pa interest on its savings accounts. If I pay £10 000 into the account, how much will it be worth in 8 years?

• A new car loses 19% of its value during the first year and 5% per year thereafter. Calculate the value of a car after 10 years that cost £30 000 when new.

Intermediate Tier Numeracy PPQs

 Carys decides to invest £380 in a savings account for 6 years. The account pays a rate of 2-54% AER.

Will Carys have sufficient money in her savings account to be able to buy a motor scooter costing £460 in 6 years' time? You must show all your working and give a reason for your answer.



	After 7 vears. the value of Mali's scooter was £
[2]	In all further years, her scooter depreciated by 13% of its previous year's value. She originally paid £850 for her scooter after 7 years. Calculate the value of Mali's scooter after 7 years.
	Mali's scooter depreciated (decreased) in value by 24% in the first year.

Calculate the current price of softwood.

•9

Seven years ago the price of softwood was £34 per m3. Before this, the price had decreased by 2% per annum. The price has increased by 6% per annum for each of the last 5 years. The price of softwood changes each year.

[3]