

Miss Price has received her total bill for water.
It is based on estimates of how much fresh water is used and how much waste water is produced.
Her bill is £58.80.

Miss Price's **actual** use of water was as follows:

- fresh water used 25.25 m^3 ,
- waste water produced 22.31 m^3 .

Fresh water used costs £1.08 per m^3 .

Waste water produced costs £1.70 per m^3 .

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

By how much has Miss Price been overcharged or undercharged?
You must show all your working.

[4 + 2 OCW]

- (b) (i)

Remember $1 \text{ m}^3 \approx 220 \text{ gallons}$

Use this conversion to calculate how much fresh water Miss Price used in gallons.
[2]

- (ii) Explain why your answer in part (b)(i) is not the exact number of gallons Miss Price used.
[1]

Intermediate Numeracy Nov 2016 P2 Q3

Loretta is paid in euros.
She is checking her tax bill for last year.

The tax rates last year were as follows:

- No tax on the first €3500 of earnings
- Earnings in excess of €3500 and up to €10 500: taxed at a rate of 25%
- Earnings above €10 500: taxed at a rate of 35%

Last year, Loretta's total earnings before tax were €34 500.

How much tax did Loretta pay in total?
You must show all your working.

[6]

Dragon CarCare is a car cleaning company.

Dragon CarCare is charged the following costs for products and services.

Car cleaning products	Costs
Car wash liquid	£1 per 5 litre bottle
Window spray	£2 per 2 litre bottle
Wax	£2.50 per 2 litre drum
Cloths and sponges	10p each

Service	Unit cost
Water	£2 per m ³
	+ Standing charge £4 per month
Electricity	25p per kWh
	+ Standing charge £10 per month
	+ 5% VAT

During June *Dragon CarCare* used the following quantities of products.

Car cleaning products	Quantity used
Car wash liquid	12 bottles
Window spray	8 bottles
Wax	6 drums

Service	Time: 00:01 Date: 1 June 2014 Meter reading	Time: Midnight Date: 30 June 2014 Meter reading
Water	3450 m ³	3950 m ³
Electricity	3000 kWh	3800 kWh

- (a) How much did *Dragon CarCare* spend on car cleaning products in June 2014? [3]
- (b) Calculate the total cost of the water and electricity used by *Dragon CarCare* during June 2014. [4]
- (c) The operating costs for *Dragon CarCare* is the sum of the water costs, the electricity costs and the cost of the products used.

Calculate the operating costs for *Dragon CarCare* for June 2014 [1]

4. Boat owners are charged to keep their boats in a harbour.

Charges for a North Wales harbour are given in the table below.

Period	Price per metre (£ per metre) exclusive of VAT	Notes
Annual	320	Minimum length of boat 9 m
Six monthly	180	Minimum length of boat 7 m
Monthly	40	No minimum length
Notes <ul style="list-style-type: none"> VAT is charged at a rate of 20%. All charges are per metre; any part metre is charged as a complete metre. Combinations of the periods are allowed. For example, for exactly 7 months, pay for 6 months then pay for an extra month, or pay monthly for each of the 7 months. 		

- (a) **Including VAT**, how much would the **monthly** charge be for a 10 m boat?
Circle your answer.

[1]

£40 £48 £400 £480 £4800

- (b) **Excluding VAT**, how much would the **six monthly** charge be for an 8.2 m boat?

[1]

£180 £1440 £1620 £1944 £1728

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

Lars owns a 9.3 m boat.
He wants to keep his boat in the harbour for 11 months.
Which option should he choose?

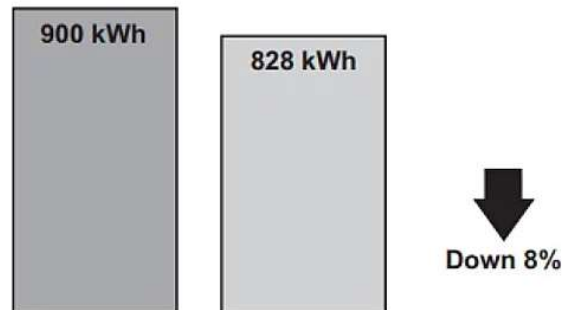
You should consider all possibilities, including VAT.
Show all your working.

[6 + OCW 2]

- (ii) What is the greatest saving that Lars could make by selecting your option?

[1]

Maggie looks at the back of her electricity bill.
It shows how much energy she used last period and this period.
This is the display she sees.



- (d) *In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Maggie used 828 kWh of electricity this period.
Electricity was charged at £0.18 per kWh.
The standing charge for this period was £65.
VAT at 5% is payable on the total cost of the electricity used and the standing charge.
Calculate Maggie's electricity bill.
You must show all your working.

[5 + 2 OCW]

Intermediate Numeracy Nov 2018 P2 Q5

Zara is paid in dollars.
Last year, Zara's total income before tax was \$25000.

The tax bands, taxable income and tax rates last year were as follows:

Band	Taxable income	Tax rate
Personal Allowance	Up to \$10 000	0%
Basic rate	\$10 000 to \$22 000	20%
Higher rate	over \$22 000	25%

- (a) Show that Zara should have paid \$2400 tax at the basic rate. [2]
- (b) Zara's **total** tax bill last year was \$4000.
She thinks an error has been made.
Calculate how much tax should be refunded to Zara.
You must show all your working. [5]
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Intermediate Numeracy Nov 2016 P2 Q5

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

Railcard for 16 to 25 year olds
£30 for a year
Get $\frac{1}{3}$ off all your rail travel

Nerys and Eleri are sisters.

Nerys is 22 years old and Eleri is 27 years old.

The two sisters live in Holyhead.

Their aunt lives in Milford Haven.

They travel by train to visit their aunt 3 times a year.

Nerys buys a 16-25 Railcard to use for these journeys.

They buy single rail tickets for each journey.

The cost of a **single** rail ticket from Holyhead to Milford Haven is £84.50.

The journey home from Milford Haven also costs £84.50 per ticket.

In a year, how much less does Nerys pay than Eleri for the journeys to Milford Haven and back?

You must show all your working.

[5 + 2 OCW]

- (b) Cristiano is 22 years old.

He sometimes travels from Rhyl to Llandudno Junction by train.

The cost of a single rail ticket from Rhyl to Llandudno Junction is £7.80.

Nerys advises Cristiano to buy a Railcard.

Cristiano says,

It is not worth paying £30 for the Railcard.

How many times in a year would Cristiano have to travel to make it worthwhile for him to buy a Railcard?

[3]

Intermediate Numeracy Summer 2018 P2 Q6

Grace sees a newspaper advertisement for *Blake's Mopeds*.

Blake's Mopeds

Best deal!
Valid if you show this advertisement.



Moped £400



Helmet should be
£80, we offer 15%
off this price

Other costs payable are

- insurance £151.20,
- and
- vehicle tax £37.

Grace is planning to save for this offer.

She also wants to save enough money for the first month's fuel.

The moped travels 20 miles on each litre of fuel.

A litre of fuel costs £1.26.

Grace estimates she will travel approximately 350 miles each month on her moped.

Starting this month, Grace will be able to save £60 per month.

After how many **complete** months will Grace have saved enough money for this offer, including the first month's fuel?

You must show all your working.

[6]

Intermediate Numeracy Nov 2016 P1 Q6

Marcin has a market stall to sell his printed T-shirts.

It costs him:

- £250 to buy 100 **plain** T-shirts,
- 50p to print a design on each T-shirt.

Marcin sells his printed T-shirts for £4.00 each.

At the start of the week:

- His bank account balance is £820.
- Marcin has 100 printed T-shirts ready to sell.
- He has already paid for these printed T-shirts.

During the week:

- Marcin sells his stock of 100 T-shirts.
- He pays all the money he takes from selling T-shirts into his bank account.
- He buys and prints another 400 T-shirts.
- Marcin **does not** sell any of these 400 T-shirts.

How much will Marcin have in his bank account at the end of this week?

You must show all your working.

[4]

In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.

On 1st June, Delyth budgets for her next electricity bill.
This bill will be for the months of June, July and August.
Her bill will have to be paid at the beginning of September.

She knows:

- the standing charge is £8 **per month**,
- her meter reading on 1st June is 20 150 kWh,
- her estimate for her meter reading on 31st August is 20 950 kWh,
- her agreement states that electricity costs 23p per kWh,
- VAT at 5% is payable on the total of the standing charge and the cost of the electricity used.

Calculate how much she should budget each month so that she is able to pay her next electricity bill.
[7 + 2 OCW]

Intermediate Numeracy Nov 2017 P2 Q8

In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.

Handmade socks, knitted using pure cashmere wool, are very expensive to buy.

Rowena buys cashmere wool in 20 g balls.
Each ball of cashmere wool costs her £1.42.
She pays her sister £8 to knit each pair of socks.
135 g of cashmere wool is used to knit each pair of socks.

Rowena sells 40 pairs of cashmere socks for £18.95 per pair.

What is her percentage profit?

Give your answer correct to 2 significant figures.

You must show all your working.



[7 + 2 OCW]

Intermediate Numeracy Summer 2017 P2 Q9b

In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.

Organics4U has 16 vehicles on the road every working day.
The company has 6 vans and 10 trucks.

Ffion has the following information for each type of vehicle.

Type of vehicle	Average distance travelled per litre (km per litre)	Average distance travelled per day (km per day)
Van	8	256
Truck	5.5	704

The fuel used by all of the 16 vehicles costs £1.10 per litre.
Use this information to calculate the **total** fuel bill for 1 working day.
You must show all your working.

[6 + 2 OCW]

Megan Pugh's electricity bill is shown below.
It covers the period May, June and July 2017.

Megan Pugh
203 Stryd Bryntor
Maesgwyn

Period	Previous meter reading	Present meter reading	Number of units of electricity used
May, June and July 2017	13450	13900	450

Charge for electricity: 450 units at 20p per unit	£90.00
Standing charge: 3 months at £7.60 per month	£22.80
Total charges:	£112.80

VAT at 5%: 5% of £112.80	£5.64
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Amount to pay: £112.80 + £5.64 = **£118.44**

- (a) On 1 August 2017, the charge per unit for electricity was increased by 5%.
What is the increased cost per unit of electricity?
Circle your answer.

[1]

20.5p 21p 21.5p 22p 22.5p

- (b) *In this part of the question you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Megan wants to calculate her next 3-monthly electricity bill.
She knows the following:

- Her meter reading on 31 October 2017 was 14400.
- The charge per unit for electricity has increased by 5% since her last bill.
- The standing charge has increased by 20p **per month** since her last bill.
- VAT remains at 5%.

On 31 October 2017, Megan had £470 in her bank account.

After paying her next 3-monthly electricity bill, will Megan be able to buy a new washing machine costing £330?

You must show all your working.

[9 + 2 OCW]

Intermediate Numeracy Sam 2 P1 Q14

- Two different European Political Parties are proposing changing the rules for income tax payments for the tax year April 2018 to April 2019.

Income Tax proposed by the **Yellow Party**

April 2018 to April 2019

taxable income = gross income – personal allowance

- personal allowance is €5000
- basic rate of tax 10% on the first €10 000 of taxable income
- middle rate of tax 25% is payable on all taxable income over €10 000 and up to €30 000
- higher rate tax 50% is payable on all taxable income over €30 000

Income Tax proposed by the **Orange Party**

April 2018 to April 2019

taxable income = gross income – personal allowance

- personal allowance is €10 000
- basic rate of tax 20% on the first €20 000 of taxable income
- higher rate tax 40% is payable on all other taxable income

- (a) During the tax year 2018 to 2019, Janina's gross income is likely to be €55 000.

Which party's tax proposal would result in Janina paying the least tax, and by how much?

You must show all your working

[7]

- (b) Samuli plays rugby for an international team. He is likely to earn €200 000 during the tax year 2018 to 2019. Without any calculations, explain why Samuli might favour the Orange Party's proposal for income tax.

[1]

Intermediate Numeracy Sam 1 P2 Q15

NwyCymru gas company uses the following formula to calculate how much to charge its customers:

$$\text{charge (in pence)} = (U \times 11.546 + D \times 31.48) \times 1.05$$

The number of units of gas used by a customer is **U** and the number of days in the billing period is **D**.

A customer was charged £165.53 over a billing period of 90 days. Calculate the number of gas units this customer used during this period.

[4]