

TACKLING WRITTEN QUESTIONS IN GCSE MATHS EXAMS

One of the biggest changes that are coming to the various maths exams is that there will be a lot more contextual questions on the papers than in the past. Contextual is just a fancy way of saying, plenty of sentences, but that still doesn't help us to solve the question does it? The easiest way to go through this is to simply go through as many of these questions as possible in order to hammer home the ways that these questions might trip you up. If we tackle them together, when the exam rolls around there will be no question too wordy for you.

So, we'll start off slow and build our way up. This first one is a 3 mark question, it's always important to show you're working out on all questions, even 1 mark questions. It's a good habit to get into and if you do make a mistake with your final answer you could still pick up 1 or 2 marks.

Zara buys 2 packets of bread rolls costing £1.50 for each packet 1 bottle of ketchup costing £1.60 3 packets of sausages

Zara pays with a £10 note.

She gets 30p change.

Zara works out that one packet of sausages cost £2.30

Is Zara right?

You must show how you get your answer.

(3 marks)

Okay, the first thing we need to do is find out which parts are important. How do we do that? Well, you're allowed to take a highlighter into your exam, so use it. Highlight the parts that look important. What kind of things are important? Well, that's easy. Maths words and numbers. So in this question here is what we would highlight.

Zara buys

2 packets of bread rolls costing £1.50 for each packet

1 bottle of ketchup costing £1.60

3 packets of sausages

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Is Zara right?

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The final one is highlighted because it is the question. The question mark gives that away. So what's our first step? We'll start at the start, that makes sense right?

2 packets of bread rolls costing £1.50 for each packet

1 bottle of ketchup costing £1.60

3 packets of sausages

Let's work out how much the bread rolls and ketchup cost. That will get us on the way. So 2 packets of bread rolls at £1.50 each makes £3 add that to the bottle of ketchup which cost £1.60 and that gives us a total of £4.60. We'd write that down like this on our exam paper.

$2 \times £1.50 = £3$

$$£3 + £1.60 = £4.60$$

That's easy enough. We're still left with the unknown cost of the sausages though. So let's see what we can do next then.

Zara pays with a £10 note.

She gets 30p change.

Well, this will let us know how much the total cost was. How will we do that? It's easy, we take 30p from £10. Whatever is left is the total cost of what Zara bought. So £10 take away 30p is £9.70. We'd write that like this

$$£10 - £0.30 = £9.70.$$

Now we need to do some working out with the two sets of working we have done so far. We know that the food cost was £4.60 plus 3 packs of sausages and we know that the total cost was £9.70. So if we take away the £4.60 from £9.70 then what is left will be the cost of the 3 packs of sausages. That will look like this.

$$£9.70 - £4.60 = £5.10$$

So from there to work out what 1 packet of sausages costs we need to divide the £5.10 by 3. Which will look like this when we do our work out.

$$£5.10 \div 3 = £1.70$$

From here we've worked out that 1 packet of sausages costs £1.70. We're not done though, remember what the question asked.

Is Zara right?

So our final answer to this question would be this.

No, Zara is not right because 1 packet of sausages costs £1.70.

Just so you can see it all together, here's the working and the final answer all as one.

Working Out

$$2 \times £1.50 = £3$$

$$£3 + £1.60 = £4.60$$

$$£10 - £0.30 = £9.70.$$

$$£9.70 - £4.60 = £5.10$$

$$£5.10 \div 3 = £1.70$$

No, Zara is not right because 1 packet of sausages cost £1.70.your answer.
(3 marks)

There is nothing wrong with putting notes in with your working out as you go along, whether it is to remind you why you did it, or so the examiner knows what you're thinking. Just as long as the correct numbers are in the correct places that will pick up all 3 marks.

That was simple enough, right? Okay then, let's try a slightly different one.

Working Out – Gas Bill

Here is the formula for working out a gas bill.

Total bill = number of units used \times rate per unit.

The rate per unit is 2.25 pence per unit.

Find the total bill in £ when 3924 units are used.

(2 marks)

This one looks a little easier doesn't it, there's fewer words to read and fewer marks on offer. That's true, there are fewer words and fewer marks on offer, however, there are some nuances to this question that set it slightly apart from the previous one. Let's highlight like we did before.

Working Out – Gas Bill

Here is the formula for working out a gas bill.

Total bill = number of units used × rate per unit.

The rate per unit is 2.25 pence per unit.

Find the total bill in £ when 3924 units are used.

(2 marks)

So from looking at this we can start to see what we need to do to complete the question. The first important piece of information is the formula that is used to work out the total gas bill. You can see this in this highlighted part here.

Total bill = number of units used × rate per unit.

So now we know what we need to know in order to work out the total bill, but what are the values that we need to put into the formula? Well, fortunately, we highlighted those too.

rate per unit is 2.25 pence per unit.

3924 units are used.

Okay, so let's put those into the formula. The number of units used is 3924 and the rate per unit is 2.25. So our calculation will be 3924×2.25 which gives us the answer 8829. So our final answer is 8829, right? Wrong. If we go back to what we highlighted earlier the question asks us for our answer in £s.

total bill in £ when 3924 units are used.

The formula doesn't give us the answer in £s it gives us the answer in pence. How do we convert from pence to £s? If you think about it logically the answer is staring you right in the face. How many pennies are in £1? There are 100 pennies in £1. So to turn pennies into £s we just have to divide the answer by 100. $8829 \div 100$ gives us 88.29. This means that our final answer to this question is £88.29. Our total working out for this question looks like this.

$$3924 \times 2.25 = 8829$$

$$8829 \div 100 = 88.29$$

£88.29

That's all there is to it for this one, but there are more difficult written questions out there. Let's take a look at another one. This time it's a little bit different, we have plenty of writing to understand but we also have to take information from a table after we have found out what we need.

The table shows information about the cost of hiring a concrete mixer from two companies.

Cost of Hiring a Concrete Mixer

Company	First Day	All Other Days	Delivery & Collection
Hanover	£16.75	£6.95	Free
Windsor	£8.90	£8.25	£7.50

Cost of Hiring Question

Hugh wants to hire a concrete mixer for 8 days.

He will hire the concrete mixer from either Hanover or Windsor.

Hugh wants to pay the least amount of money.

Which company should he choose?

Show how you get your answer.

This question requires a lot more from us than the previous 2 questions. There is a lot more working involved and a lot more deciding what is important from the information that is given. So, let's highlight just like we did before.

The table shows information about the cost of hiring a concrete mixer from two companies.

Cost of Hiring a Concrete Mixer

Company	First Day	All Other Days	Delivery & Collection
Hanover	£16.75	£6.95	Free
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He will hire the concrete mixer from either Hanover or Windsor.

Hugh wants to pay the least amount of money.

Which company should he choose?

Show how you get your answer.

As you can see with this one there is a lot that we have highlighted, that's because there's a lot of working out for this one. Let's look at what steps we need to take to solve this problem. First off, what is the question asking for at the very end?

Pay the least amount of money.

Which company should he choose?

Show how you get your answer.

So it wants to know which company charges the least and then we need to choose the cheapest company. We also need to show our working all of the ways through this. What else is important to us before we start looking at the table and doing our working out?

Hire a concrete mixer for 8 days.

This part right here is where it tells us how we will be able to work things out from the table. So, let's have a look at the table and see what it tells us.

Cost of Hiring a Concrete Mixer

Company	First Day	All Other Days	Delivery & Collection
Hanover	£16.75	£6.95	Free
Windsor	£8.90	£8.25	£7.50

Let's work out Hanover first. We know that we have to hire the concrete mixer for 8 days, we also know that on the first day we are charged £16.75 then on every other day we are charged £6.95. Using our powers of logic we can easily see that we have 1 day at £16.75 and then 7 days at £6.95. That means that our working out for this is $£16.75 + (£6.95 \times 7)$ which gives us an answer of £65.40.

There is no charge for delivery and collection so our final answer is £65.40.

Now we have the answer for Hanover, it's time to work out Windsor. Windsor's first day costs £8.90 and then on every other day we are charged £6.95. We do the same routine that we did when we worked out Hanover, we have 1 day at £8.90 and 7 days at £8.25. That means that our working out for this is $£8.90 + (£8.25 \times 7)$ which gives us an answer of £66.65. There is also a £7.50 delivery and collection charge which means our next working out is $£66.65 + £7.50$ which gives us a final answer of £74.15.

From this, we can see that the cheapest option is Hanover. The total working for this question looks like this.

Working Out

Hanover $£16.75 + (£6.95 \times 7) = £65.40$

Windsor $£8.90 + (£8.25 \times 7) = £66.65$

$£66.65 + £7.50 = £74.15$

The cheapest option is Hanover because it only costs £65.40 compared to the £74.15 that Windsor costs.

Okay, so we've gone up in difficulty each time. Our last one is the most difficult that we've seen. It requires more than just using the 4 basic operations to work out our answers. This one is going to need a little bit of percentage work as well. So, let's have a look at the question.

Supermarket Question

A supermarket is carrying out a promotion in January.

Andrew is collecting vouchers from the supermarket.

Each red voucher is worth 5 points.

Each blue voucher is worth 9 points

Each yellow is worth 12 points.

Andrew collects 120 vouchers in January.

60 of the vouchers are red.

35% of the vouchers are blue.

The rest of the vouchers are yellow.

To get a prize Andrew must collect at least 1000 points in January.

Will Andrew get a prize in January?

You must show how you get your answer.

As you can see there is a bit more to this question than there has been in the previous examples. Let's highlight the important parts to see what we need to focus on.

Supermarket Question

A supermarket is carrying out a promotion in January.

Andrew is collecting vouchers from the supermarket.

Each red voucher is worth 5 points.

Each blue voucher is worth 9 points

Each yellow is worth 12 points.

Andrew collects 120 vouchers in January.

60 of the vouchers are red.

35% of the vouchers are blue.

The rest of the vouchers are yellow.

To get a prize Andrew must collect at least 1000 points in January.

Will Andrew get a prize in January?

You must show how you get your answer.

So we have the important information here. Red vouchers are worth 5 points, blue vouchers are worth 9 points and yellow vouchers are worth 12 points. We also know that Andrew collected 120 vouchers altogether in January. What else did we find out?

Supermarket Question

60 of the vouchers are red.

35% of the vouchers are blue.

The rest of the vouchers are yellow.

So from here, we can work out how many vouchers of each type we have. We know right off the bat that we have 60 red vouchers, that's a nice easy one. 35% of the vouchers are blue. How do we find this one out? There are a number of ways to work out percentages if you have a calculator you can just type in $35\% \times 120$ which will give you the answer of 42. Of course, you could also have converted 35% to a decimal, which you do by dividing by 100 and then multiplying 120 by the answer. That would give you 0.35×120 which also gives the answer of 42.

Now we know that we have 60 red vouchers and 42 blue vouchers. From here we can add the 2 totals together to give us 102. To find out the number of yellow vouchers we just need to do $120 - 102$ which gives us the answer of 18. Now, all we need to do is work out how many points Andrew earned in January. This requires us to multiply the points per voucher by how many vouchers earned and then add them all up together. So our sum will look like this

$(60 \times 5) + (42 \times 9) + (18 \times 12)$ which gives us a total answer of 894. That means that our final answer is that no Andrew didn't have enough points to get a prize in January. All of our working out for this question looks like this.

Supermarket Question

Red = 60 vouchers

Blue = $0.35 \times 120 = 42$ vouchers

Yellow = $120 - (60 + 42) = 18$ vouchers

$(60 \times 5) + (42 \times 9) + (18 \times 12) = 894$.

Andrew doesn't have enough points to get a prize in January because 894 is less than 1000 points.

The important lesson to take away from all of this is when dealing with contextual questions on your [GCSE Maths](#) paper is to not just get scared and give up. Find the important parts and use them to work out what maths you need to do. Then you will pick up marks.

Just to wrap things up, could your parents or guardian handle your [GCSE maths exam questions](#). Ask them to give it a try? It might be fun! :twisted: