

# HOW TO PRACTICE THE WORD-BASED QUESTIONS FOR YOUR GCSE MATHS EXAM

There has been an absolute boatload of changes to the [mathematics](#) curriculum over the last few years. Ignore what your parents tell you, exams are not getting easier. In fact, they're getting significantly harder. While some of the increase in difficulty does involve more difficult questions being moved down to the foundation paper and even some A-Level topics being introduced earlier, a lot of it is from "contextual questions" being used a lot more.

Contextual questions sound terrible, they sound like what you have to do when you write essays in history. Take sources and put them into context. This is maths, not history why should we care about putting things into context? I know it sounds stupid, but context is actually really important in maths. What's the point in knowing how to work out the percentage of something if you never know how to actually use it? Or why Pythagoras is important if you want to be an architect? That's what contextual questions help us to do.

That's just a big word though, what it really means is wordy questions. Loads of writing that doesn't really make much sense. It is easy to get it to make sense though. Not just is it easy to get it to make sense, but it's easy to pick up some of the marks even you still struggle to get the final answer.

Take this question for example.

**Here are two readings from a gas meter.**

0	1	9	6	2
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January

0	2	1	5	9
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April

**The difference in the meter readings gives the number of units of gas used.**

**The cost of gas is 21p for each unit of gas used.**

**Work out the cost of gas used.**

**Give your answer in pounds (£).**

**4 marks.**

The first thing to do when you see this question is to stop screaming. It will get your thrown out of the exam hall and no-one wants that. The second thing to do is calmly read through it and look for maths words in the question. The maths words will give you an idea of what working out you need to do in the question. If you can work out where the maths words are, what they mean and how to use them IN **CONTEXT** to the question.

Addition	Subtraction	Multiplication	Division
Greater than	Takeaway	Product	Split
Increasing	Minus	Of	Share
Combined	Decrease	Times	Each
More than	Difference	Twice	Equal parts
Combined	Smaller than	Lots of	Ratio
Join	Reduce		Out of
Raise	Less than		
Added	Fewer than		
Total	Smaller than		
Sum	Less		
Plus			
Together			

If you look through the question you will see at least one of those words in there standing right out at you. Here it is again.

Here are two readings from a gas meter.

0 1 9 6 2

January

0 2 1 5 9

April

The **difference** in the meter readings gives the number of units of gas used.

I've made it red for you. The difference is the maths word. The difference means takeaway. So the first step for this question is for you to take away the first reading from the second reading. That means the sum you will have to work out is  $2159 - 1962$  giving us an answer of 197.

If I write down  $2159 - 1962 = 197$  on my exam paper I would get 2 marks. 2 marks out of 4 just for doing that. Notice how so far we haven't really explained what the question is asking? We still don't really know what it wants. All we have done is looked for maths words. A keyword if you like, and we have done what it told us.

This is an incredibly important part of making sure that you gain the most possible marks on your exam paper. If you see a contextual question and don't understand it, search the question for maths words and then carry out what they tell you to do. Even though so far I haven't got a clue what this question wants me to do, I've still managed to pick up half of the marks just by finding a maths word. It might sound simple and like I'm tricking you, but I'm really not. The maths paper isn't trying to trick you, it's just trying to find out if you know how to do what it tells you.

So to the second part of the question. This part is a little more tricky, but not too much. We already know that the number of units of gas used was 197. We worked that out, the question said: "The difference in meter readings gives the number of units of gas used." So using our incredible brains we have worked out that 197 units of gas were used. What next?

The cost of gas is 21p for each unit of gas used.

Work out the cost of gas used.

Give your answer in pounds (£).

I was going to put the important parts in red, but for the last part of the question, most would have been in red really. Let's break it down though, what we already know and what it is asking us to do

with it. We know we have 197 units used. We know that each unit costs 21p. They want to know the total cost of gas. They want that total in pounds. Okay, so your first 2 marks were picked up with relative ease. They're making you work for those final 2.

First things first, the two mentions of money in the question are in different forms. Pence and pounds. We need to convert one to the other. How do we decide which one to change? That's easy. We know they want the answer in pounds. That means that we are going to convert the pence value into pounds.

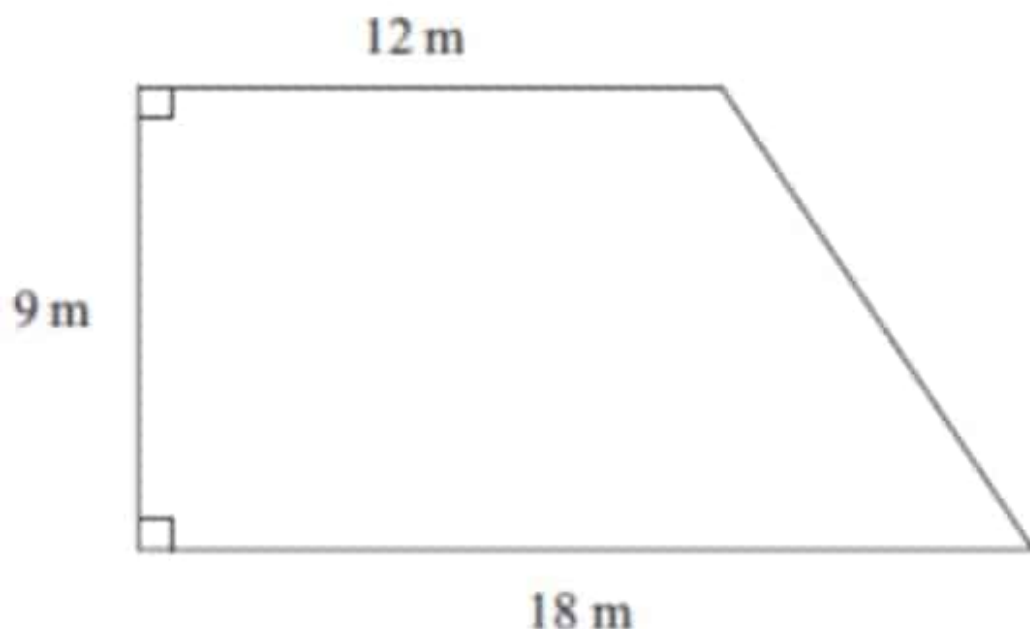
There are a number of ways to do this. The easiest way is to just remember how many pence are in 1 pound. It's 100 right? So all you do is divide how many pence you have by 100 and that gives you that pence value in pounds. We have 21 pence as the cost of gas per unit, so our sum is  $21 \div 100$  which gives us the answer 0.21. Now we've converted our pence value into pounds we can get on with finding out the final answer. We're on the final stretch for this now.

So the final part that the question asked for was the total price. What information do we have for this last bit? We know that 197 units of gas were used. We know that each unit costs £0.21. All we have to do is multiply the two numbers together.  $197 \times £0.21$  gives us £41.37. That is your final 2 marks. We've picked up 4 marks, and none of that was anything complicated at all. All we had to do was find out the important parts the question told us and then do what it told us.

Let's go through quickly the important parts of how we found that answer. First, we looked for maths words. Then we did what the maths word told us to do. Then we used what we found out to find out the final answer. It was as simple as that.

Let's try another question.

**Here is a diagram of Jim's garden.**



**Diagram NOT  
accurately drawn**

Jim wants to cover his garden with grass seed to make a lawn.

Grass seed is sold in bags.

There is enough grass seed in each bag to cover  $20\text{m}^2$  of garden.

Each bag of grass seed costs £4.99

Work out the least cost of putting grass seed on Jim's garden.

This is slightly different from the first question we tried, the maths in this question is slightly more hidden. It's not in there as words, it is still telling you what to do though. Look through the question. Is there anything in the first line? Nope. All it is telling you is what the diagram represents. The diagram itself doesn't tell us much of us, yet!

Look through the rest of the question before you check the next part. See if you can spot the maths.

Jim wants to cover his garden with grass seed to make a lawn.

Grass seed is sold in bags.

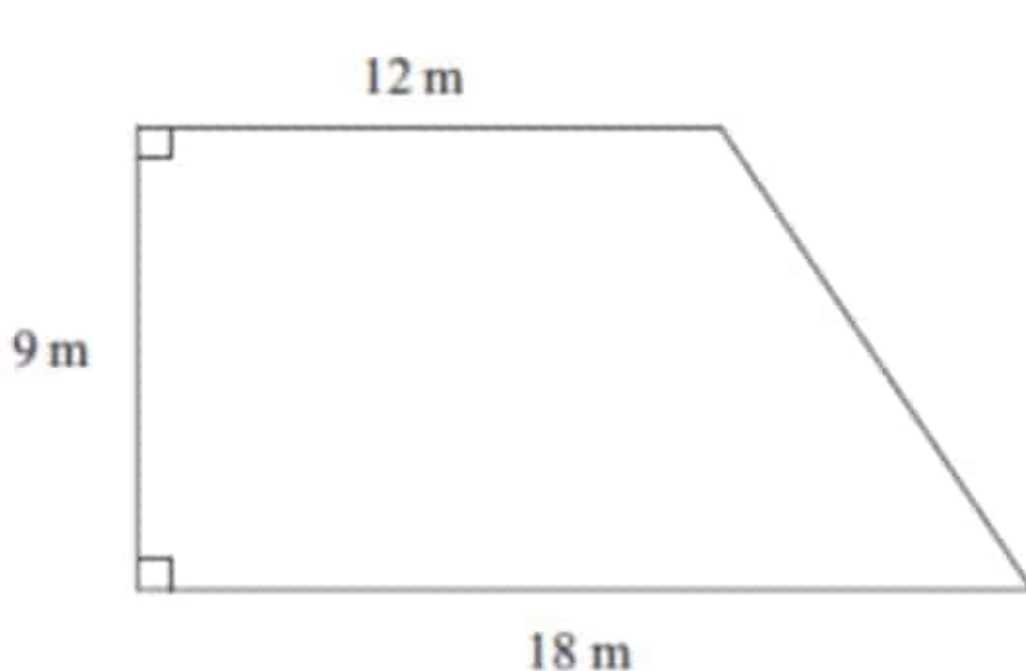
There is enough grass seed in each bag to cover  $20\text{m}^2$  of garden.

Each bag of grass seed costs  $\pounds 4.99$

Work out the least cost of putting grass seed on Jim's garden.

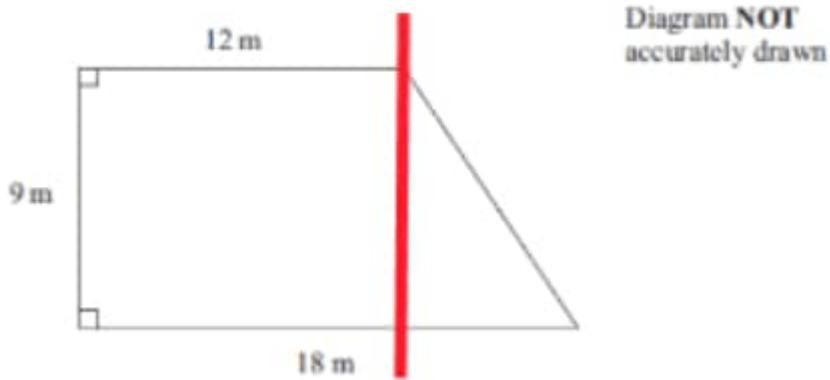
Did you spot it? The maths this time wasn't in words, but it was in the numbers. Look at the part highlighted in red. What is that telling us?  $\text{m}^2$  means metres squared. What are metres squared an example of? An area.

With that information coupled with the diagram also shown at the start, we need to think about what we're going to do. They have told us that each bag of grass covers a certain area. They have given us a shape, which represents the garden, maybe if we work out the area of that shape it will tell us the area we need to cover? Let's try it.



**Diagram NOT  
accurately drawn**

This is awkward, the shape isn't that easy to work out. There are two ways to work out the area of this shape. The first way is to treat it as a compound shape. In case you didn't already know, to work out the area of a compound shape we split it into parts and from there we work out each part then add up the area of each part to give us the total area. Simple, right? Let's try splitting it up first and go from there.



See how we have split the shape into two separate shapes? We have a rectangle that is 9m by 12m. We also have a triangle that is 9m high, but we don't know the length of the base. To work that out we need to look at the length of the two parallel sides that are perpendicular to the red line. In simple words, the two sides opposite each other that go in the opposite direction to the red line. Notice how the base of the triangle starts where the 12m line ends. That means that the extra distance on the line at the bottom is what makes up the base of the triangle. As the bottom line is 18m and the top line is 12m, we now know that the base of the triangle is 6m, because 18 take away 12 is 6.

From here we can work out the area of the two separate shapes. First the rectangle. The rectangle has sides of 12m and 9m. So  $12 \times 9 = 108\text{m}^2$ . The triangle has a base of 6m and a height of 9m. So  $6 \times 9 = 54$ , then  $54 \div 2 = 27$ . So the area of the triangle is  $27\text{m}^2$ . Adding the two areas together gives us  $108 + 27 = 135\text{m}^2$ .

The second way to work out the area is to recognise that the shape is a trapezium. To work out the area of a trapezium we add together the top and bottom lengths and then divide the total by 2. So that is  $18 + 12 = 30$ . Then we do  $30 \div 2 = 15$ . Once we have done this we multiply it by the height of the trapezium. So we have  $15 \times 9 = 135\text{m}^2$ .

Notice the two areas both equal the same? It doesn't matter which method you choose to work out the area. Both are perfectly acceptable because both give you exactly the same answer.

Now, from here we have picked up 3 out of the 5 marks available. Again, without even really understanding what the question is asking. We just looked for the maths in it and did the logical thing. Of course, we want the full 5 marks so we're going to go back and find out how to get them.

Jim wants to cover his garden with grass seed to make a lawn.

Grass seed is sold in bags.

There is enough grass seed in each bag to cover  $20\text{m}^2$  of garden.

Each bag of grass seed costs £4.99

Work out the least cost of putting grass seed on Jim's garden.

All of the parts highlighted in red are the important parts, as well as the total area of the garden being  $135\text{m}^2$  which we worked out earlier. We know that each bag of grass seed covers  $20\text{m}^2$  so there are two ways to work out how many bags of seed we need. First, we could divide the total area needed by the area covered by each bag. So that would be  $135 \div 20$  which gives us 6.75. We can't buy 0.75 of a bag of seed though, so we would need 7 bags. The other way would be to count up in the 20s until we hit the first number higher than 135. That goes 20, 40, 60, 80, 100, 120, 140, and altogether that is 7 lots of 20.

So now we know how many bags of seed we need. We're hitting the final stretch for those 5 marks now. Each bag costs £4.99. We need 7 bags. So we do  $£4.99 \times 7$  which gives us £34.93. There we picked up 5 marks, without really having to worry about what the question was asking. All we had to do was look for the maths in the question and then just do what came naturally.

Does that mean we shouldn't bother reading the question and just skim it for the important parts? The answer to that is of course not. Always read the question, but you should be looking for the maths while you do it. If you are struggling to understand what the question is asking then don't panic and leave the question, just remember what we did. Look for the maths. Once you have found it, do whatever makes sense with it. For both of those questions, we picked up half marks without even reading the question.

Never panic and skip ahead when you see a worded question, as long as you find the maths in the question you will always pick up some of the marks.