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Introduction

These exemplar answers have been chosen from the summer 2018 examination series.

OCR is open to a wide variety of approaches and all answers are considered on their merits. These exemplars, therefore, should not be seen as the only way to answer questions but do illustrate how the mark scheme has been applied.

Please always refer to the specification https://www.ocr.org.uk/qualifications/gcse/gateway-science-suite-combined-science-a-j250-from-2016/ for full details of the assessment for this qualification. These exemplar answers should also be read in conjunction with the sample assessment materials and the June 2018 Examiners’ report or Report to Centres available from Interchange https://interchange.ocr.org.uk/Home.mvc/Index

The question paper, mark scheme and any resource booklet(s) will be available on the OCR website from summer 2019. Until then, they are available on OCR Interchange (school exams officers will have a login for this and are able to set up teachers with specific logins – see the following link for further information http://www.ocr.org.uk/administration/support-and-tools/interchange/managing-user-accounts/).

It is important to note that approaches to question setting and marking will remain consistent. At the same time OCR reviews all its qualifications annually and may make small adjustments to improve the performance of its assessments. We will let you know of any substantive changes.
**Question 1**

**Exemplar 1**

1. Iron can be extracted from its ore by heating it with carbon.
   Which statement is the correct explanation for this?
   - A. Iron is above carbon in the reactivity series. x
   - B. Iron is above copper in the reactivity series. x
   - C. Iron is below carbon in the reactivity series.  
   - D. Iron is below sodium in the reactivity series. x

Your answer:  

**Examiner commentary**

The candidate has given the correct answer in the answer box. Originally, they wrote the incorrect answer ‘B’. They have clearly crossed this out so the replacement answer could be credited. The candidate has also placed a tick against the correct statement and crosses against the incorrect statements. The answer in the answer box has priority over these ticks and crosses so as long as there is an answer in the box the tick and crosses are ignored. If no answer is written in the box then a correctly placed tick can be credited. It is recommended that candidates know to write answers clearly in answer boxes or on answer lines.

**Question 2**

**Exemplar 1**

2. Look at the table.

<table>
<thead>
<tr>
<th>Nitrogen</th>
<th>Oxygen</th>
<th>Carbon dioxide</th>
<th>Argon</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21%</td>
<td>78%</td>
<td>0.84%</td>
</tr>
<tr>
<td>B</td>
<td>80%</td>
<td>15%</td>
<td>4.5%</td>
</tr>
<tr>
<td>C</td>
<td>70%</td>
<td>20%</td>
<td>9%</td>
</tr>
<tr>
<td>D</td>
<td>78%</td>
<td>21%</td>
<td>0.04%</td>
</tr>
</tbody>
</table>

Which row in the table shows the percentage of gases in the present day atmosphere?

Your answer:  

**Examiner commentary**

The candidate has given the correct answer in the answer box. Only about half the candidates got this right. Many forgot that there are gases in the other than oxygen and nitrogen.
Question 3

Exemplar 1 1 mark

3 Look at the equation for the reaction between sulfur dioxide and oxygen to make sulfur trioxide.

\[ 2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g}) \]

The reaction forms a dynamic equilibrium.

Which of the following describes dynamic equilibrium?

A All the reactants and products are gases.
B The rate of the backward reaction is greater than the rate of the forward reaction.
C The rate of the forward and backward reactions are equal.
D The rate of the forward reaction is greater than the rate of the backward reaction.

Your answer [ ] [1]

Examiner commentary

The candidate has given the correct answer in the answer box. It is good to see that the majority of candidates know the definition of dynamic equilibrium. Specific definitions and statements directly from the specification can be tested so candidates should know these.

Question 4

Exemplar 1 1 mark

4 Fluorine is the most reactive element in Group 7 (Group 17).

Why?

A Fluorine atoms gain an electron more readily than the other Group 7 elements.
B Fluorine is a gas.
C Fluorine exists as diatomic molecules.
D Fluorine atoms lose electrons more readily than the other Group 7 elements.

Your answer [A] [1]

Examiner commentary

The candidate has given the correct answer in the answer box. Where candidates did not gain a mark it was because they thought fluorine atoms gained an electron.
Question 6

Exemplar 1 1 mark

6 Magnesium is a more reactive metal than copper.

Why?

A Copper forms positive ions more readily than magnesium.
B Copper is higher in the reactivity series than magnesium.
C Magnesium gains electrons more readily than copper.
D Magnesium loses its outer electrons more easily than copper.

Your answer: [C]

Examiner commentary

The candidate has given the incorrect answer in the answer box. The candidate was confused about what happens to electrons when metals react. This confusion mirrors incorrect answers given in Question 4.

Question 7

Exemplar 1 1 mark

7 Which of these solutions will react with each other?

A Sodium bromide and iodine
B Sodium chloride and bromine
C Sodium chloride and iodine
D Sodium iodide and bromine

Your answer: [D]

Examiner commentary

The candidate has given the correct answer in the answer box. This candidate has shown their working. This is a good use of the space around the question and should be encouraged where appropriate. It is recommended that candidates know to write answers clearly in answer boxes or on answer lines.
Question 7

Exemplar 1

1 mark

Which of these solutions will react with each other?

A Sodium bromide and iodine
B Sodium chloride and bromine
C Sodium chloride and iodine
D Sodium iodide and bromine

Your answer D

Examiner commentary

The candidate has given an incorrect answer in the answer box. This was a common misconception. The copper is absorbed as ions not as the metal element.

Question 11 (a)

Exemplar 1

2 marks

A company wants to make a glass to hold a cool drink. They are considering materials A and B.

Look at the life cycle assessments for a glass made out of materials A and B.

<table>
<thead>
<tr>
<th>Process</th>
<th>Material A</th>
<th>Material B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Energy used (MJ)</td>
<td>Greenhouse gases made (g of CO₂)</td>
</tr>
<tr>
<td>Extracting the raw materials</td>
<td>5.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Manufacturing of the glass from the raw materials</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Transporting the glasses to the shop</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Process W</td>
<td>2.0</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>8.9</td>
<td>4.1</td>
</tr>
</tbody>
</table>

(a) Complete the table to show the totals for each column.

Examiner commentary

The candidate has given the correct answer on the answer lines. All four calculations had to be correct for both marks. Two or three correct gained 1 mark. Almost all candidates gained both marks. Where both marks were not given, it was often due to carelessness. Candidates need to check their work carefully and make sure they transfer numbers from their working to the answer line correctly.
Examiner commentary

The candidate has given the correct answer on the answer line. Disposal/end of life management is the expected answer. The four stages of life cycle assessment are extraction, manufacturing, transport and disposal. Common incorrect answers were 'selling' and 'placing on shelves'. The mark scheme did allow for specific examples of end of life management such as recycling, reusing or melting as this was a glass product.

Examiner commentary

The candidate has given the correct answer. They gain a mark for 'they are heavier' even if they had written nothing else. Using more energy is also gained a mark. However, they did not gain a second mark for 'so more energy required' as this is the same mark point as 'they are heavier' and there is only 1 mark available.

Examiner commentary

The candidate has given the correct answer. The two marks were awarded for 'less energy is used' and 'less energy is produced'. In general this was well answered. Candidates needed to use information from the table. Where candidates did not use the totals or used data given rather than calculated they struggled to give the correct answer. This question was about interpreting data and making conclusions from it.
Question 12

Exemplar 1

12 A student investigates the rate of reaction between magnesium and hydrochloric acid. The reaction gives off hydrogen gas.

The student wants to investigate how changing the concentration of the hydrochloric acid affects the rate of reaction.

Look at her plan.

**First experiment**

I will put 0.5 g of magnesium ribbon into the flask.
I will add 50 cm$^3$ of hydrochloric acid.
I will measure how fast the gas is given off.

**Second experiment**

I will put another 0.5 g of magnesium ribbon into the flask.
I will add 100 cm$^3$ of the same hydrochloric acid.
I will measure how fast the gas is given off.

Another student thinks that the plan will not work and he does not understand exactly what he has to do.

Suggest how the plan for this investigation can be improved.

...He needs to keep the volume of the HCl the same... and keep the size of the magnesium... to keep it the same... but he also needs to keep the temperature... The same... why another which will keep the temperature... same... but he needs to change the concentration or the HCl... [4]

Rather than changing volume, we need to measure the volume of the gas in a set time period...
Examiner commentary

The candidate has given the correct answer. They have gained all 4 marks available. The candidate needed to use evaluation of method skills to answer this question. Many candidates found this very difficult. Many suggested repeating the experiment. This does not gain a mark as it is not an improvement to the method. In general, only one or two marks were scored. These were often for stating ‘use a gas syringe’ and ‘measure how fast gas is given off’.

This answer scored for; ‘keep the volume of the HCl the same,’ ‘keep the temperature the same,’ ‘change the concentration of the HCl’ and ‘measure the volume of gas in a set period of time’.

Candidates should be given the opportunity to evaluate methods whenever they carry out a practical skill.

Question 13 (a)

Exemplar 1

The table shows some hydrocarbons from crude oil.

<table>
<thead>
<tr>
<th>Name</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>CH₄</td>
</tr>
<tr>
<td>Propane</td>
<td>C₃H₈</td>
</tr>
<tr>
<td>Butane</td>
<td>C₄H₁₀</td>
</tr>
</tbody>
</table>

(a) Nonane is another hydrocarbon from crude oil.

It contains 9 carbon atoms.

Predict the formula of nonane.

\[ C₉H₂₀ \]

Examiner commentary

The candidate has given the correct answer. This candidate has used information from the table and possibly their own knowledge of the formula of alkanes to work out the correct answer. Candidates must be encouraged to read and use all information given in a question.
Question 13 (b)

Exemplar 1

(b) Write down the name of this homologous series of hydrocarbons.  

Aikanes .................................................. [1]

Examiner commentary

The candidate has given the correct answer. In general this question was not answered as well as expected. Many candidates gave the answer 'hydrocarbons'. This was just a repeat of the stem. Some gave a specific name of an alkane showing they did not understand the meaning of homologous series.

Question 14 (a) (i)

Exemplar 1

(a) (i) Calculate the rate of reaction during the first 8 minutes for the small marble chips and the large marble chips. Include the units. Give your answers to 2 decimal places.

<table>
<thead>
<tr>
<th>Small marble chips</th>
<th>Large marble chips</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1.4}{8} = 0.175 )</td>
<td></td>
</tr>
<tr>
<td>( \frac{0.8}{8} = 0.10 )</td>
<td></td>
</tr>
</tbody>
</table>

Answer = 0.18 g/min. Unit = \( \text{g/min} \)  
Answer = 0.10 g/min. Unit = \( \text{g/min} \)

Examiner commentary

The candidate has calculated the rates of reaction for each type of chip correctly. They have converted their answers to two decimal places and given both units as 'g/min'.
Exemplar 2

2 marks

(a) (i) Calculate the rate of reaction during the first 8 minutes for the small marble chips and the large marble chips.

Include the units.

Give your answers to 2 decimal places.

<table>
<thead>
<tr>
<th>Small marble chips</th>
<th>Large marble chips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δy/Δx = 9/12</td>
<td>Δy/Δx = 1/10</td>
</tr>
<tr>
<td>= 0.75</td>
<td>= 0.10</td>
</tr>
</tbody>
</table>

Answer = 0.75, Unit = g/min

Examiner commentary

The candidate has calculated the rates of reaction for each type of chip correctly and given the answer to two decimal places for 1 mark. They have given correct units for another mark. They have used the wrong numbers in the calculation for small chips.

Exemplar 3

1 mark

(a) (i) Calculate the rate of reaction during the first 8 minutes for the small marble chips and the large marble chips.

Include the units.

Give your answers to 2 decimal places.

<table>
<thead>
<tr>
<th>Small marble chips</th>
<th>Large marble chips</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4/g = gradient</td>
<td>0.8/g = 0.1</td>
</tr>
<tr>
<td>= 0.175</td>
<td></td>
</tr>
</tbody>
</table>

Answer = 0.175, Unit = g/s

Examiner commentary

The candidate has calculated the rates of reaction for each type of chip correctly. However, they did not read the question fully and so did not convert their answers to two decimal places. This was a common error. They also gave incorrect units. It can be assumed they have written ‘g/s’. The units should be ‘g/min’. Many candidates made this mistake. Another common mistake was dividing mass by time. Other candidates tried to convert minutes to seconds. This was not required by the question and made it difficult for them to answer to two decimal places. Candidates need practice analysing data from graphs and tables.
Question 14 (a) (ii)

Exemplar 1

(ii) Which reaction is faster?

Examiner commentary

The candidate has given the correct answer. There is no mark for choosing small chips. This candidate gained marks for ‘gradient of the curve is steeper’ and ‘levels off quicker’. It was clear they had chosen small chips. Many candidates thought that small chips gave off more gas overall. Candidates must practice interpreting graphs and drawing conclusions from them.

Question 14 (b)

Exemplar 1

(b) Explain why changing the size of the marble chips changes the rate of the reaction.

Examiner commentary

The candidate has given the correct answer. They gained 2 marks for stating ‘smaller chips increases the surface to volume ratio’ and the third mark for ‘the more collisions that are successful’.

It was rare to see candidates discuss surface area to volume ratio. Many candidates lost marks because they said smaller chips would have more collisions. This is an incomplete answer. To gain the final mark point they must state more ‘successful’ or more ‘frequent’ collisions.

It must be clear which chip is being discussed. If large chips are being discussed the reverse argument would gain credit. Many candidates lost marks because it was not clear which size chip was being discussed or they though that large chips had larger surface areas.
Examiner commentary

This was a high level question and very few candidates were awarded more than 1 or 2 marks here. It was expected that correct terminology was used.

This question was about the greenhouse effect and so to gain full marks greenhouse gases must be discussed. Many candidates did not do this. Many candidates wrote about 'rays' but were not specific enough to gain marks.

This answer gained marks for; 'solar radiation is emitted from the sun towards the Earth’s surface,' 'some of the radiation leaving the earth’s atmosphere,' and 'the rest being trapped due to greenhouse gases.' There was no mention of absorption or emission of radiation by the Earth. There was no mention of radiation from the greenhouse gases returning to the Earth to warm it.

Many candidates described the key stage 2 model of a greenhouse around the Earth and talked about rays bouncing and reflecting. This does not use the appropriate terminology to gain credit at GCSE.
Question 15 (b)

Exemplar 1

2 marks

(b) Look at the graphs.

**Graph 1** shows how the Earth’s temperature has changed between 1880 and 2010.

**Graph 2** shows how the amount of carbon dioxide in the air has changed between 1750 and 2010.
Some scientists believe that graph 1 and graph 2 show that increased levels of carbon dioxide have increased the Earth’s temperature.

Other scientists believe that it is just a natural cycle of change.

Quote data from the graph which supports both of these arguments.

Evidence to support increased temperature of Earth

From 1980 – 2090, there was a huge increase in temperature levels, and from 1980 – 2090, there was a huge increase of carbon levels too.

Evidence to support a natural cycle

In 1996, the temperature of the Earth dropped whereas the carbon levels continued to increase rapidly.

Examiner commentary

This question was broken down into two parts. To gain full marks, candidates needed to use both graphs for each part. It was not enough to mention the carbon dioxide graph in the first part but not in the second. This candidate compared the graphs for each part of the question and so gained full marks. A good answer should use data as this is in the question. This candidate did this, quoting years.

Question 16 (a)

Exemplar 1

Level 3, 6 marks

16 Look at the information about three elements X, Y and Z in the Periodic Table.

<table>
<thead>
<tr>
<th>Element</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atomic number</td>
<td>Less than 11</td>
<td>11</td>
<td>More than 11</td>
</tr>
<tr>
<td>Melting point (°C)</td>
<td>181</td>
<td>98</td>
<td>63</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>0.53</td>
<td>0.97</td>
<td>0.86</td>
</tr>
<tr>
<td>Reaction with water</td>
<td>Reacts quickly making hydrogen</td>
<td>Reacts vigorously making hydrogen</td>
<td>Reacts explosively making hydrogen</td>
</tr>
<tr>
<td>Energy needed to remove 1 electron from an atom (kJ/mol)</td>
<td>520</td>
<td>496</td>
<td>419</td>
</tr>
<tr>
<td>Atomic radius (nm)</td>
<td>0.134</td>
<td>0.154</td>
<td>0.196</td>
</tr>
<tr>
<td>Formula of chloride</td>
<td>XCl</td>
<td>YCl</td>
<td>ZCl</td>
</tr>
<tr>
<td>Action of heat on carbonates</td>
<td>Breaks down and makes carbon dioxide</td>
<td>No reaction</td>
<td>No reaction</td>
</tr>
</tbody>
</table>
Examiner commentary

When answering an extended response question candidates must be careful to read and answer the full question. This means for this question that candidates must discuss evidence for both A and B as well as analyse this evidence to draw a conclusion.

This candidate explained evidence for A backing up the idea that they are all in group 1. They show understanding of trends in a group as well as using their own knowledge of the atomic number for sodium. They also explain evidence for B backing up the idea that they are not in the same group due to no trend in the action of heat on carbonates or in densities. They choose A as there is more evidence and the elements are clearly in group 1. They could have been more concise with the answer but irrelevant content is ignored and does not detract from the mark.
Exemplar Candidate Work

Level 2, 4 marks

(a) Student A thinks that elements X, Y and Z are in the same Group of the Periodic Table.

Student B thinks they are in different Groups of the Periodic Table.

Analyse and explain the information in the table that supports both Student A's and Student B's conclusions.

Who do you think is correct?

It could be true that all three are in the same group because they all have similar reactions with water. They all produce hydrogen but at different rates. This could show them from the same group. Because elements in the same group have similar chemical properties we can tell that Element Y is sodium because of its atomic number which means it is a alkali metal and the other two could also be alkali metals just below or above it because of their reactions with water so Student A may be correct.

However, Student B may be the one who is correct.

Examiner commentary

This candidate has explained evidence to support both A and B. They have not analysed this information and come to a conclusion and so are limited to Level 2. To improve their mark they should state which conclusion is correct and why e.g. A is correct as there is more evidence supporting it and all the elements are in group one. Again this answer could have been more concise. The number of answer lines illustrate the length of the expected answer.
Exemlpor 3

Level 1, 2 marks

(a) Student A thinks that elements X, Y and Z are in the same Group of the Periodic Table.

Student B thinks they are in different Groups of the Periodic Table.

Analyse and explain the information in the table that supports both Student A’s and Student B’s conclusions.

Who do you think is correct?

I think Student A is correct because most of the data and numbers are very similar. They all react similarly when mixed with water and all have almost identical formulas of chloride. However, Student B could also be correct because of their action of heat on carbonates. Only one of the elements reacts. The melting points of all 3 elements are fairly spread out and they have very different atomic radius.

[6 marks]

Examiner commentary

This candidate has used evidence correctly for each of the conclusions. However, they have just stated information from the table and not explained it and so this is a Level 1 answer only. To improve their mark they could have explained, for example, that there are trends in a group and these elements show trends to support conclusion A.

Candidates must use information from the question but if they only restate that information and do not explain or analyse it they are unlikely to gain more than Level 1 marks.
Question 16 (b)

Exemplar 1 1 mark

(b) Write a balanced symbol equation for the reaction of element Y with water.

Use Y to represent element Y.

\[ 2Y + 2H_2O \rightarrow 2Y(OH) + H_2 \] [2]

Examiner commentary

The candidate has given the correct answer. This and other questions asked candidates to show their equation writing and balancing skills, often candidates did not use the correct formulae or did not balance correctly. It was acceptable but not expected for candidates to replace Y with Na. It is important that letter case and superscript and subscripts are correct. Some candidates tried to use words and this would not gain marks as a symbol equation was required.

Question 17 (a)

Exemplar 1 1 mark

17 Aluminium is extracted from its ore by electrolysis.

This is an electrolysis cell.

(a) Aluminium cannot be extracted by heating aluminium oxide with carbon. Explain why.

because aluminium is more reactive than carbon [1]

Examiner commentary

The candidate has given the correct answer. Candidates that did but did not get a mark did not discuss reactivity. Some stated that carbon can't reduce aluminium when they should have stated it can't reduce aluminium oxide. Some candidates misread the question and gave alternative methods but no explanation.
Question 17 (b)

Exemplar 1

(b) Aluminium oxide is mixed with cryolite in the electrolysis cell.

Explain why cryolite is used.

...is a catalyst to reduce the amount of energy needed for the reaction.

0 marks

Examiner commentary

This answer is incorrect. The candidate has assumed wrongly that cryolite is a catalyst for the reaction. Candidates need to be familiar with the process of the electrolysis of aluminium. They needed the idea of the melting point of aluminium oxide lowering so less energy needed. They could also have gained a mark if they said cryolite was used to dissolve the aluminium oxide.

Question 17 (c)

Exemplar 1

(c) Aluminium is made at the negative electrode (cathode) from aluminium ions, \( Al^{3+} \).

Write a half equation for this reaction. Use \( e^- \) to represent an electron.

\[ Al^{3+} + 3e^- \rightarrow Al \]  

1 mark

Examiner commentary

The candidate has given the correct answer on the answer line. The crossed out work is ignored, candidates generally struggled to answer this question correctly. Many candidates clearly did not know what a half equation was and tried to write full balanced equations. Those who attempted a half equation found it difficult to balance the electrons. Candidates should practise writing half equations.

Question 17 (d)

Exemplar 1

(d) Oxygen, \( O_2 \), is made at the positive electrode (anode).

The anodes in the cell have to be replaced every few weeks.

Suggest why.

The oxygen reacts with the anode to form \( CO_2 \) gas.

Which wears it away. So it must be replaced.

2 marks

Examiner commentary

This is a good answer with both marks awarded.

Often candidates thought that the oxygen coated the carbon so it could not react. Where 1 mark was awarded, it was for oxygen reacting with carbon.
Question 17 (e)

Exemplar 1

2 marks

Examiner commentary

The candidate has given the correct answer.

Often candidates did not realise the aluminium oxide was being broken down and assumed there must be another reactant. This meant they tried to balance an equation with incorrect reactants. Other candidates assumed that aluminium oxide was being made and added it to the right hand side as a product.

Question 18 (a)

Exemplar 1

2 marks

Examiner commentary

The candidate has given the correct answer. One mark was more common. Candidates understood that the equilibrium moves to the right but they struggled to explain why. Many talked about increasing pressure instead of the effect of adding more reactants so moving the equilibrium.
**Question 18 (b)**

**Exemplar 1** 2 marks

(b) Predict the effect of increasing the total pressure in the equilibrium mixture.

Explain your answer.

There are less moles in the products so the position.

will move to the right to produce more products.

and decrease the overall pressure. [2]

**Examiner commentary**

The candidate has given the correct answer. Many candidates answered in terms of increasing rate of reaction but did not mention that equilibrium was reached more quickly. Others knew that increasing the pressure would move the equilibrium to the right but could not state why and so did not gain the second mark.

**Question 18 (c)**

**Exemplar 1** 2 marks

(c) Predict the effect of increasing the temperature of the equilibrium mixture.

Explain your answer.

................................................................. 

................................................................. [2]

**Examiner commentary**

The candidate has given the correct answer. Many candidates answered in terms of increasing rate of reaction but did not mention that equilibrium was reached more quickly. Others knew that increasing the temperature would move the equilibrium to the left but could not state why and so did not gain the second mark. Many incorrectly thought a faster rate of reaction would mean more products.
Question 18 (d)

Exemplar 1 3 marks

Examiner commentary

The candidate has given the correct answer on the answer line to two significant figures. This means all three marks can be awarded. This answer is also very clearly set out. The examiner can follow each step and see where the answers are being calculated. If the candidate had made an error e.g. when transferring a number, it is likely they would still have been awarded some marks.

Exemplar 2 2 marks

Examiner commentary

Candidates needed to carry out the calculation and then give the answer to two significant figures. Maths skills such as this and answering to specific number of decimal places are now part of the specification. It would be useful for candidates to practise these skills.

This candidate gained a mark for correctly dividing 48 by 64.1 to get 0.7488. They then got confused and carried out an incorrect calculation with this figure. They did give their answer to this to two significant figures and so were able to gain the final mark point.

An incorrect answer to two significant figures alone is not worth a mark. If it is clear what steps the candidate has tried to calculate with the relevant numbers then they can be awarded a mark for correctly giving this answer to two significant figures.

Many candidates wrote down several conflicting calculations and this did not gain marks even if some of them are correct.

It is important that working is shown. The examiner must be able to follow the working in order to award marks where the final answer is wrong. Candidates need to practice setting out multi step calculations so that is clear which stage is which.
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