A-level

DESIGN AND TECHNOLOGY: PRODUCT DESIGN 7552/2

Paper 2 Designing and Making Principles

Mark scheme

June 2024

Version: 1.0 Final

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Glossary for maths

If a student uses a method which is not explicitly covered by the mark scheme the same principles of marking should be applied. Credit should be given to any valid methods. Examiners should seek advice from their senior examiner if in any doubt.

[a, b]	Accept values between a and b inclusive.
For π	Accept values in the range [3.14, 3.142]
Their	Accept an answer from the candidate if it has been inaccurately calculated but is subsequently used in a further stage of the question.

Questions which do not ask students to show working

As a general principle, a correct response is awarded full marks.

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>01</td><td></td><td>
Figures 1 and 2 show two chairs.

Analyse and evaluate the suitability of each of the two chairs shown for large-scale production.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>9–12 marks</td><td>Full use of the information concerning the chairs has been made to form justified analytical and evaluative statements. Detailed technical knowledge and understanding beyond the information provided is given and related to the suitability for large-scale production. There may be some minor irrelevant comments or lack of clarity in some comments but this will not detract from the overall quality of the response.</td></tr>
<tr><td>5–8 marks</td><td>Most of the information concerning the chairs has been utilised to form analytical statements. Some technical detail beyond the information provided is given with some reference to the suitability for large scale-production. At the lower end of the mark band there may be limited expansion on some of the information given. The majority of comments will be relevant.</td></tr>
<tr><td>1–4 marks</td><td>Basic use of the information has been made to compare the chairs shown with limited expansion of the information to show further knowledge and understanding. At the lower end of the mark band comments will be restricted to comparing information given with no further detail.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

Figure 1

• Production methods require large capital investment suitable for large scale production only.
• The chair is constructed from sub-assemblies ideal for assembly line production and also for customer assembly after purchase.
• The use of colour pigments within injection moulding increases flexibility in large scale production.
• The use of a single-piece seat and back reduces the number of components used making assembly quicker and reducing errors in assembly.
• Use of temporary joining methods make the chair ideal for flat-packed furniture to reduce transport costs (manufacturers can transport more at one time).
</td><td>12 marks</td><td>AO31a and AO31b</td></tr>
</table>

		• The use of self-finishing PP for the seat reduces risk of chipping and QC issues during production. • The plastic seat can be easily stacked during production and transport. • Powder coating can be performed on the production line. • Eames chair may require warehousing for parts/JIT production as the low carbon steel parts, beech legs and PP chair are unlikely to all be manufactured on the same site. **Figure 2** • The use of adhesives make assembly longer and increases storage costs after production due to the physical size of the chair. • The application of paint increases the labour costs, time and increases the need for QC checks on quality of finish. • The use of wastage techniques to create the seat increase material costs and reduces the sustainability of the product. • The use of multiple joints may require complex clamping jigs during assembly. **This list is not exhaustive. Accept any other valid responses.**		

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>02</td><td></td><td>
Explain how reliance on global supply chains can affect the development of a product.

In your answer you should refer to:
• materials
• energy
• product cost.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>5–6 marks</td><td>The response gives a good explanation of how reliance on global supply chains can affect product development using relevant and appropriate explanations of each of the reference points given. There may be some minor irrelevant points or lack of clarity in some points but this will not detract from the overall quality of the response.</td></tr>
<tr><td>3–4 marks</td><td>The response gives a reasonable explanation of how the impact of global supply chains can affect product development or manufacture. The response focuses mainly on one of the reference points given. There may be some irrelevant points but this will not detract from the overall response.</td></tr>
<tr><td>1–2 marks</td><td>The response gives a basic explanation of supply chains. At the lower end of the mark band statements will be largely generic and may be limited in relevance.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

Materials

• Issues with damaged deliveries
• Reference to conflict and issues at borders that may slow down deliveries.
• Reference to the reliance on Just-in-time production and the impact of delays on supply compared to ‘Just-in-case’ production and storage.
• Reference to political issues and tariffs on goods between countries.
• Reference to companies ensuring they have the correct paperwork/documentation for the transport of goods.

Energy

• Reference to the sustainability and environmental impact of companies/transport.
• Reference to transport costs due to fuel price increases.
</td><td>6 marks</td><td>AO42c</td></tr>
</table>

		• The development of technology such as video conferencing/Teams etc speeds up communication compared to post/mail/couriers. This has speeded up transactions between countries. **Product cost** • Reference to **exchange rates between countries**. • Reference **to different taxation rates** in different countries and the impact on product cost. • Reference to **variations in legislation and standards between countries.** • The need to conform to European safety standards to allow sales in multiple countries. **This list is not exhaustive. Accept any other valid responses.**		

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>03</td><td></td><td>Outline the key features required in an instruction booklet for self-assembly furniture.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>5–6 marks</td><td>The response gives a detailed outline of the key features required in an instruction manual for self-assembly furniture. The response uses relevant technical vocabulary with accuracy. There may be some minor irrelevant points or lack of clarity in some points but this will not detract from the overall quality of the response.</td></tr>
<tr><td>3–4 marks</td><td>The response gives a good outline of several features expected in an instruction manual for self-assembly furniture. Some aspects of the explanation may lack technical detail. There may be some irrelevant points but this will not detract from the overall response.</td></tr>
<tr><td>1–2 marks</td><td>The response gives a basic outline of the requirements for an instruction booklet for self-assembly furniture. At the lower end of the mark band statements will be largely generic and may be limited in relevance.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

• Exploded views of sub-assemblies and the final product.
• A parts list for the whole product.
• A parts list for each stage.
• Step-by-step diagrams showing tools and parts.
• A list of required tools to complete the assembly.
• Diagrams showing part orientation for successful assembly.
• Numbered sequential diagrams.
• Full-size drawings of fixings allowing easier recognition.
• Health and safety instructions for assembly/use of product.
• Online versions of instructions to reduce paper waste.
• Product codes for replacement parts.
• QR code links to online video tutorials.
• Instructions of how to maintain and/or repair the product.
• Instructions for product return/disposal.

This list is not exhaustive. Accept any other valid responses.</td><td>6 marks</td><td>AO42c</td></tr>
</table>

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>04</td><td></td><td>
A shipping container measures 12 m × 2.5 m × 2.5 m and costs £3000 to transport from manufacturer to retail store.

A flat-packed chair is packaged in a single box measuring 600 mm × 600 mm × 600 mm.

A full container of flat-packed chairs is shipped.

Calculate in pounds and pence the shipping cost of a single flat-packed chair.

Show your working.
<table>
<tr><td>Rationalise dimensions to m or mm</td><td>12 m = 12000 mm

or

600 mm = 0.6 m</td><td>1 mark</td></tr>
<tr><td>Calculate the maximum whole number of flat-packed chairs that will fit into a container</td><td>$\frac{2.5}{0.6} = 4.166$

$\left(\frac{2.5}{0.6}\right) \times \left(\frac{2.5}{0.6}\right) \times \left(\frac{12}{0.6}\right)$

Recognition that you must use whole values and round down.

$= 4 \times 4 \times 20$

16×20
= 320 flat-packed chairs</td><td>1 mark</td></tr>
<tr><td>Calculate the cost per chair in pounds and pence.</td><td>$\frac{£3000}{320}$ = 9.37 or 9.38</td><td>1 mark</td></tr>
<tr><td>Correct answer seen with no working out shown.</td><td>9.37 or 9.38</td><td>3 marks</td></tr>
</table>
</td><td>3 marks</td><td>AO42c</td></tr>
</table>

Qu	Part	Marking Guidance	Total marks	AO
05		State **three** ways manufacturers can reduce the environmental impact of the packaging they use. 1 mark for **each** of the following to a maximum of 3 marks. • Remove adhesives for joining packaging. • Replace non-biodegradable materials with biopolymers or compostable materials. • Reducing the volume of material used in packaging. • Reduce the use of printing upon packaging. • Use limited number of materials within the packaging. • Collect packaging after delivery. • Provide information on the packaging about safe recycling. • Use of water-based inks in printing. **This list is not exhaustive. Accept any other valid responses.**	**3 marks**	AO42a

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>06</td><td></td><td>
Figure 3 shows an initial Styrofoam prototype model of a hairdryer.

Analyse and evaluate the suitability of different prototyping methods for further development of the hairdryer prototype model shown in Figure 3 for production.

In your answer you should refer to:
• modelling materials
• virtual prototyping
• physical prototyping.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>9–12 marks</td><td>The response provides a detailed analysis and evaluation of a range of prototyping methods highly relevant to the hairdryer context. Methods are compared referring to all of the given reference points with technical detail that justifies the use of each method. There may be some minor irrelevant comments or lack of clarity in some comments but this will not detract from the overall quality of the response.</td></tr>
<tr><td>5–8 marks</td><td>The response provides a good analysis and evaluation of possible prototyping methods that are largely relevant to the hairdryer context. Comparisons are drawn between the methods stated with reference to the bullet points in the question. At the lower end of the mark band there may be limited expansion on comments. The majority of comments will be relevant.</td></tr>
<tr><td>1–4 marks</td><td>The response offers a limited analysis of different prototyping techniques that may be relevant to the hairdryer context. At the lower end of the mark band comments will lack detail and some accuracy.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

Modelling materials

• The production of a high density modelling foam prototype would allow finish application and colour testing.
• A 3D printed model using ABS or PLA could be produced to simulate the real product allowing inclusion of webs and ribs etc.
• ABS and PLA can be put through testing procedures.
• The Styrofoam model is much quicker to produce and requires less machining (can be handmade).
• 3D printed models require CAD files to allow production.
</td><td>12 marks</td><td>AO31a and AO31b</td></tr>
</table>

		• Foam models can be used to test ergonomics and can be easily carved/sanded after user testing. • 3D prints need redrawing in CAD and reprinting to adjust ergonomics. • Foam models can be scanned with 3D scanners to produce 3D CAD files for 3D printing reducing time in modelling. **Virtual prototyping** • The production of a full 3D CAD model will show all components and allow assembly checking without final production. • Any 3D CAD model can be tested with different material settings without manufacture to select the correct material. • CAD software can allow testing of forces on components without destroying physical models. • Mould tools can be tested for flow properties before investment in manufacture. • Augmented reality can allow CAD models to be projected into environments for testing. **Physical prototyping** • Block models can be checked with user groups more easily that CAD models. • Working prototypes of the electronics within the hairdryer can be tested before inserting into the product. • Physical prototypes can be used to test the product mechanisms such as buttons and ease of operation not possible with CAD. **This list is not exhaustive. Accept any other valid responses.**		

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>07</td><td></td><td>Describe how a 3D component would be designed and produced using the 3D printing process shown in Figure 4.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>5–6 marks</td><td>The response gives a detailed description of all the key stages within the 3D printing process shown. There may be some minor irrelevant points or lack of clarity in some points but this will not detract from the overall quality of the response.</td></tr>
<tr><td>3–4 marks</td><td>The response gives a good description of most of the key stages within the 3D printing process shown. There may be some irrelevant points but this will not detract from the overall response.</td></tr>
<tr><td>1–2 marks</td><td>The response gives a basic explanation of 3D printing as a whole. At the lower end of the mark band statements will be largely generic and may be limited in relevance.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

• CAD model production: A CAD model is produced using 3D modelling software or from an online CAD library etc.
• Model file converted to layers: A 3D CAD file (STL etc) is sent to software to slice into layers.
• Material preparation: PLA, ABS or other material filament is fed to a heated extruder.
• Model creation: The heated extruder is moved around the heated bed extruding filament to outline the 3D component.
• Build-up of layers: The extruder is raised by a single layer of thickness and another layer of molten polymer is added to the previous cooling layer.
• Model completion: When all layers are complete the extruder retracts and the bed is removed.
• The printed component is removed from the bed.</td><td>6 marks</td><td>AO42b</td></tr>
</table>

Qu	Part	Marking Guidance	Total marks	AO
08		Describe the term 'acceptable tolerance'. **1 mark**: for reference to an allowed variation in measurements, dimensions or resistance to forces etc. **1 mark**: for reference to what happens to products falling within the tolerance range **1 mark**: for reference to products that fall outside the tolerance range N.B. • Responses may give an example such as: +/– 0.5 mm. This would be worth 1 mark, but needs explaining for greater reward. • Reward reference to a suitable method of checking that a dimension is within a tolerance range **Example 3 mark response:** An acceptable tolerance is where there is an allowance for the measurement of a product to be either slightly smaller or larger than stated. This allows for a product to still be manufactured despite a slight change in measurements. If the tolerance is made too large it would result in material waste since it would not fit with other components.	**3 marks**	AO42b

Qu	Part	Marking Guidance	Total marks	AO
09		Describe a quality control check that may be performed on a production line to ensure all products conform to acceptable tolerances. **Indicative content** 1 mark for a specific QC check (examples in bold). 1 mark for reference to regularity or method of testing. • **A visual check for common faults** either by human, scanned by lasers or using camera recognition. • **A check of dimensional accuracy** performed on sample products away from the production line. • **Use of go/no-go gauges** to check dimensions are within limits by passing a product through the gauge (or not). **This list is not exhaustive. Accept any other valid responses.**	**2 marks**	AO42c

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>10</td><td></td><td>Describe how a designer could apply a user-centred design approach when developing a toaster for a family home.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>5–6 marks</td><td>The response gives a detailed explanation of user-centred design which relates to the context given. The response describes a range of relevant and specific methods that could be used, using subject-specific language. There may be some minor irrelevant points or lack of clarity in some points but this will not detract from the overall quality of the response.</td></tr>
<tr><td>3–4 marks</td><td>The response gives a good explanation of user-centred design which may relate in places to aspects of the context given. The response describes methods that are largely appropriate using language that shows good understanding, but may not be wholly explicit. There may be some irrelevant points but this will not detract from the overall response.</td></tr>
<tr><td>1–2 marks</td><td>The response gives a basic explanation of user-centred design. The response refers to generic methods that have limited relation to the context. At the lower end of the mark band statements will be largely generic and may be limited in relevance.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

• By using a variety of focus groups looking at different age groups within the family the designer can gain consumer views/specify requirements.
• Analysing anthropometric data for a range of age groups within the ‘family’ user group specifically looking at hand and finger sizes to design controls.
• Performing a product analysis on existing products designed for the user group.
• Use of focus groups throughout the design process to gauge opinions on design concepts and decisions.
• By viewing user groups testing existing products to see issues with the products.
• Using market research to analyse the requirements of the user group.
• The designer will produce design ideas/prototypes that reflect the needs/requirements of the user groups to collect feedback.

This list is not exhaustive. Accept any other valid responses.</td><td>6 marks</td><td>AO42c</td></tr>
</table>

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>11</td><td></td><td>
Consumers increasingly want to repair electronic products rather than replace them.

Discuss what designers and manufacturers are doing to enable consumers to repair their electronic products.

<table>
<tr><th>Marks</th><th>Description</th></tr>
<tr><td>5–6 marks</td><td>The response gives a detailed discussion of the measures taken by both designers and manufacturers to enable repair rather than replacement of electronic products. The response uses relevant and appropriate technical language accurately throughout the discussion to support the comments made. There may be some minor irrelevant points or lack of clarity in some points but this will not detract from the overall quality of the response.</td></tr>
<tr><td>3–4 marks</td><td>The response gives a good discussion of measures taken to enable product repair rather than replacement. Technically accurate language is used in places and supports the comments made. There may be some irrelevant points but this will not detract from the overall response.</td></tr>
<tr><td>1–2 marks</td><td>The response gives a basic explanation of some measures used to encourage product repair. At the lower end of the mark band statements will be largely generic and may be limited in relevance.</td></tr>
<tr><td>0 marks</td><td>No response or nothing worthy of credit.</td></tr>
</table>

Indicative content

• Removal of permanent joining techniques.
• Provision of online repair manuals and videos.
• Provision of replacement components.
• Provision of effective component labelling to allow identification of repairable parts.
• Use of clip and snap fixings for ease of disassembly.
• Provision of specific tools to aid disassembly and repair.
• Environmental legislation eg right to repair scheme.

This list is not exhaustive. Accept any other valid responses.
</td><td>6 marks</td><td>AO31a</td></tr>
</table>

Qu	Part	Marking Guidance	Total marks	AO
12		State **two** methods used when evaluating a prototype product. 1 mark per relevant method (maximum 2 marks). • Comparison with the specification. • Evaluating in context. • User group evaluation. • Safety testing. • Mechanism testing. **This list is not exhaustive. Accept any other valid responses.**	**2 marks**	AO42a

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>13</td><td></td><td>Screws are supplied in bags of 200 g (+/– 2%)

Each screw has a mass of exactly 3 g

Calculate the maximum and minimum number of whole screws in a bag.

Show your working.

<table>
<tr><td>Calculate the maximum and minimum mass of the bag of screws</td><td>200 g + 2% = 204 g
200 g – 2% = 196 g</td><td>1 mark</td></tr>
<tr><td>Calculate the maximum number of screws in a bag</td><td>$\frac{204}{3}$ = 68</td><td>1 mark</td></tr>
<tr><td>Calculate the minimum number of screws in a bag</td><td>$\frac{196}{3}$ = 65.333

= 66 screws as 65 screws would be below 196 g in mass and therefore outside tolerance.</td><td>1 mark</td></tr>
</table>
</td><td>3 marks</td><td>AO42c</td></tr>
</table>

Qu	Part	Marking Guidance	Total marks	AO
14		Name **two** specific eco labels relating to energy use **and** describe their use. 1 mark for name. 2 marks for description: what are they found on, what do they show, etc. **Acceptable labels** **EU/EC/UK energy label** • Found on white goods, buildings etc. • Rates a product from A–G based on energy efficiency. • Shows energy consumption in KW/h. • Gives a colour scale of energy efficiency from A (green) to G (red). **Energy efficiency label** • Available on white goods, insulation products, boilers and light bulbs. • Awarded to the most energy-efficient products in specific classes. **EPA Energy star** • Found on IT equipment. • The label indicates that the product passes key criteria on power usage when idle and in sleep mode. **EU/EC/UK Ecolabel** • Found on a range of white goods. • A voluntary ecolabel that is awarded if a product meets high levels of environmental standards. • Environmental standards assessed throughout a product's life cycle from material extraction through to final disposal.	**6 marks**	AO42b

<table>
<tr><th>Qu</th><th>Part</th><th>Marking Guidance</th><th>Total marks</th><th>AO</th></tr>
<tr><td>15</td><td></td><td>
The Styrofoam block model is cut from a cuboid.

The length (AE) is 25 cm

(AE) makes an angle of 18 degrees with the base of the cuboid (ABCD)

The area of the base of the cuboid is 215 cm^2

The volume of the Styrofoam block model is $\frac{1}{3}$ of the cuboid volume.

Calculate the volume of the Styrofoam block model.

Show your working.
<table>
<tr><td>Select the correct trigonometry equation</td><td>Sin 18 = $\frac{O}{25}$</td><td>1 mark</td></tr>
<tr><td>Substitute the correct values to calculate the height of the cuboid (EC)</td><td>O = 25 × sin 18
O = [7.7, 7.73]</td><td>1 mark</td></tr>
<tr><td>Calculate the volume of the cuboid</td><td>[7.7, 7.73] × 215
= [1655.5, 1661.95] cm^3

or

their [7.7, 7.73] × 215</td><td>1 mark</td></tr>
<tr><td>Calculate the volume of the block model as $\frac{1}{3}$ of the cuboid volume</td><td>$\frac{[1655.5, 1661.95]}{3}$

= [551.8, 554] cm^3

or

their $\frac{[1655.5, 1661.95]}{3}$</td><td>1 mark</td></tr>
<tr><td>Correct answer seen with no working</td><td>[551.8, 554] cm^3</td><td>4 marks</td></tr>
</table>
</td><td>4 marks</td><td>AO42c</td></tr>
</table>