



A-level
**DESIGN AND TECHNOLOGY:
FASHION AND TEXTILES**
7562/2

Paper 2 Designing and Making Principles

Mark scheme

June 2019

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 Assessment Writer.

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.

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]

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

Qu	Part	Marking Guidance	Total marks	AO				
1	1	<p>Analyse the fabrics in Figure 1 and Figure 2 and evaluate their suitability for outdoor winter sports clothing.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Figure 1</p> <p>Figure 1: Gore-tex® jacket</p>  </div> <div style="text-align: center;"> <p>Figure 2</p> <p>Figure 2: Plain weave polyamide jacket</p>  </div> </div> <table border="1" style="width: 100%; margin-top: 20px;"> <tr> <td style="width: 15%; text-align: center; vertical-align: top;">5-6 marks</td> <td>Excellent analysis of the characteristics and properties of each fabric with detailed evaluation of the suitability of both Gore-tex® and plain weave polyamide for outdoor winter sports clothing. Clear and accurate detailed information about many of the fabric properties and an understanding that Gore-tex® is the inner laminated membrane. A variety of reasons are given to explain the suitability of each fabric. 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 style="text-align: center; vertical-align: top;">3-4 marks</td> <td>Good analysis of some of the characteristics and properties of each fabric with some evaluation of the suitability of both Gore-tex® and plain weave polyamide for outdoor winter sports clothing. Some reasons are given to explain the suitability of each fabric. Some reference to the laminated/layered/membrane structure of Gore-tex® and/or plain weave structure. There may</td> </tr> </table>	5-6 marks	Excellent analysis of the characteristics and properties of each fabric with detailed evaluation of the suitability of both Gore-tex® and plain weave polyamide for outdoor winter sports clothing. Clear and accurate detailed information about many of the fabric properties and an understanding that Gore-tex® is the inner laminated membrane. A variety of reasons are given to explain the suitability of each fabric. 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.	3-4 marks	Good analysis of some of the characteristics and properties of each fabric with some evaluation of the suitability of both Gore-tex® and plain weave polyamide for outdoor winter sports clothing. Some reasons are given to explain the suitability of each fabric. Some reference to the laminated/layered/membrane structure of Gore-tex® and/or plain weave structure. There may	6 marks	AO3
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	be less information about one of the fabrics.		
1-2 marks	Basic analysis and information concerning the characteristics and properties of one or both fabrics with little or no reference to the laminated/layered/membrane structure of Gore-tex® or plain weave structure. Little or no evaluation of the suitability of one or both fabrics for outdoor winter sports clothing.		
0 marks	No response worthy of credit.		
<p>Indicative content:</p> <ul style="list-style-type: none"> • Gore-tex® is not warm, unless there is an inner layer of thermally insulating fabric. • Gore-tex® is not a smart fabric. • Not about wicking but about water vapour escaping through the Gore-tex® membrane. <p>Gore-tex® is a suitable fabric for outdoor winter sports clothing because:</p> <ul style="list-style-type: none"> • Gore-tex® is a laminated fabric that is waterproof and windproof. • The Gore-tex® membrane is often laminated between a soft inner lining fabric and a high-performance outer fabric. • The Gore-tex® membrane can be laminated to a wide range of fabrics to create fabric suited to sports and outdoor clothing, footwear and accessories. • The Gore-tex® membrane is a very thin layer with microscopic pores which allow perspiration to pass through but prevents raindrops from penetrating resulting in a breathable fabric. • Gore-tex® is ideal for outdoor winter sports clothing because it is tough, lightweight, and breathable; it keeps the wearer dry and comfortable during extreme weather conditions and during physical activity. <p>Disadvantages:</p> <ul style="list-style-type: none"> • If worn during extreme physical activity the amount of sweat might be too great to be expelled through the membrane and the wearer might still become damp inside the jacket. • Gore-tex® is likely to be expensive impacting on the cost of the jacket. • During use over time layers may separate. • May not be very warm to wear. <p>Plain weave polyamide could be a suitable fabric for outdoor winter sports clothing because:</p> <ul style="list-style-type: none"> • It is lightweight/thin 			

	<ul style="list-style-type: none"> • It is crease resistant • It is strong even when wet • Durable • May be resistant to rain as non-absorbent • Resistant to abrasion. • It dries quickly. • Can be engineered to enable moisture to be wicked away from the body during physical activity. • Plain weave has the maximum number of interlocking points to make a firm, stable, strong and smooth woven fabric. • Easy to store/pack into a small space • Do not give credit for ‘cheap’. <p>However, plain weave polyamide has disadvantages because:</p> <ul style="list-style-type: none"> • It is non-absorbent but not waterproof. • It would not keep the wearer comfortable and dry under extreme weather conditions. • Not warm to wear. <p>Award any other valid responses.</p>		
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1	2	<p>Analyse the style features of each jacket in Figure 1 and Figure 2 and evaluate their suitability for outdoor winter sports clothing.</p> <table border="1" data-bbox="304 1133 1198 1839"> <tr> <td data-bbox="304 1133 445 1541">5-6 marks</td> <td data-bbox="445 1133 1198 1541">Excellent analysis of the jacket style features with detailed evaluation of the suitability of both jackets for outdoor winter sports clothing. Clear and accurate detailed information about the jacket styling used in each jacket. A variety of reasons are given to explain the suitability of each jacket for outdoor winter sports clothing. 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. Judgement may be made as to which jacket is best suited to outdoor winter sports clothing.</td> </tr> <tr> <td data-bbox="304 1541 445 1839">3-4 marks</td> <td data-bbox="445 1541 1198 1839">Good analysis of some of the jacket style features. The suitability of both jackets for outdoor winter sports clothing is evaluated in some detail. Some reasons are given to explain the suitability of each jacket for outdoor winter sports clothing. There may be less information about the style features of one of the jackets. At the lower end of the mark band the style features of only one jacket may be analysed but it will be in detail.</td> </tr> </table>	5-6 marks	Excellent analysis of the jacket style features with detailed evaluation of the suitability of both jackets for outdoor winter sports clothing. Clear and accurate detailed information about the jacket styling used in each jacket. A variety of reasons are given to explain the suitability of each jacket for outdoor winter sports clothing. 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. Judgement may be made as to which jacket is best suited to outdoor winter sports clothing.	3-4 marks	Good analysis of some of the jacket style features. The suitability of both jackets for outdoor winter sports clothing is evaluated in some detail. Some reasons are given to explain the suitability of each jacket for outdoor winter sports clothing. There may be less information about the style features of one of the jackets. At the lower end of the mark band the style features of only one jacket may be analysed but it will be in detail.	6 marks	AO3
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<p>1-2 marks</p>	<p>Basic analysis and information concerning the style features of one or both jackets. Little or no evaluation of the suitability of the style features of one or both jackets for outdoor winter sports clothing. Limited reasons are given to explain the suitability of each jacket for outdoor winter sports clothing.</p>
<p>0 marks</p>	<p>No response worthy of credit.</p>
<p>Indicative content:</p> <ul style="list-style-type: none"> • Accept points regarding colour or fastenings if related to outdoor winter sports clothing eg safety reasons. • Do not credit points about sustainability. <p>Style features Jacket 1:</p> <ul style="list-style-type: none"> • Lined hood/jacket • Lined hood which covers lower face/neck, with cap peak • Asymmetric panels • Chest pockets on both sides, one with pocket flap • Hip pockets on each side • Draw string/elasticated/close fitting at waist • Pleated cuff with fastening • Centre front fastening, with chin guard/which extends over neck/chin/face • Striking colour contrast zip feature and hood lining. • Zip with reflective material • Hip length jacket allows freedom of movement during sports activities but does not protect the lower body from winter weather. • Fitted to some extent at waist. <p>Style features Jacket 2:</p> <ul style="list-style-type: none"> • Elasticated/close fitting/ gathered fabric at hood, waist and cuffs • Hip pockets on each side • Centre front fastening • Hip length jacket allows freedom of movement during sports activities but does not protect the lower body from winter weather • Top stitching to accentuate style features. <p>Suitability Jacket 1:</p> <ul style="list-style-type: none"> • Protects wearer from extreme weather conditions due to close-fitting cuffs and bottom of jacket at waist. • Protects wearer from extreme weather conditions due to lined, bulky, closefitting hood with cap peak and coverage of chin/neck area. • Keeps belongings secure in a range of conveniently positioned fasten up pockets so opportunity to carry personal belongings/equipment. • Pockets balanced on each side of body and at easy to access 	

		<p>positions.</p> <ul style="list-style-type: none"> • Centre front opening makes it easy to get coat on/off • Pocket flap and fastenings protect pocket contents from weather <p>Suitability Jacket 2:</p> <ul style="list-style-type: none"> • Centre front fastening makes it easy to get coat on/off • Elastic gathers fabric at hood, waist and cuffs to protect wearer from poor weather conditions to some extent. • Only 2 hip pockets which may or may not be secured by fastenings so limited opportunity to carry personal belongings/equipment but they are easy to access. • Light and easy to carry/store. • Zip cover to prevent rubbing. <p>Award any other valid responses.</p>		
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1	3	<p>Analyse the components used for the jackets in Figure 1 and Figure 2 and evaluate their suitability for outdoor winter sports clothing.</p> <table border="1"> <tr> <td>5-6 marks</td> <td>Excellent analysis of the use of components in the jackets with detailed evaluation of the suitability of both jackets for outdoor winter sports clothing. Clear and accurate detailed information about the components used in each jacket. A variety of reasons are given to explain the suitability of each jacket for outdoor winter sports clothing. 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>Good analysis of some of the components used in each jacket. The suitability of both jackets for outdoor winter sports clothing is evaluated in some detail, although there may be less information about one of the jackets. At the lower end of the mark band the components used for only one jacket may be analysed but it will be in detail.</td> </tr> <tr> <td>1-2 marks</td> <td>Basic information concerning the use of components in one or both jackets with limited analysis. Little or no evaluation of the suitability of the components in one or both jackets for outdoor winter sports clothing.</td> </tr> <tr> <td>0 marks</td> <td>No response worthy of credit.</td> </tr> </table> <p>Indicative content:</p> <p>Components Jacket 1:</p> <ul style="list-style-type: none"> • Plastic zip with zip pull 	5-6 marks	Excellent analysis of the use of components in the jackets with detailed evaluation of the suitability of both jackets for outdoor winter sports clothing. Clear and accurate detailed information about the components used in each jacket. A variety of reasons are given to explain the suitability of each jacket for outdoor winter sports clothing. 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.	3-4 marks	Good analysis of some of the components used in each jacket. The suitability of both jackets for outdoor winter sports clothing is evaluated in some detail, although there may be less information about one of the jackets. At the lower end of the mark band the components used for only one jacket may be analysed but it will be in detail.	1-2 marks	Basic information concerning the use of components in one or both jackets with limited analysis. Little or no evaluation of the suitability of the components in one or both jackets for outdoor winter sports clothing.	0 marks	No response worthy of credit.	6 marks	AO3
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		<ul style="list-style-type: none"> • Taped/reflective zips • Toggle/draw string fastener • Elastic/cord • Velcro • Popper <p>Components Jacket 2:</p> <ul style="list-style-type: none"> • Metal zip • Elastic <p>Suitability Jacket 1:</p> <ul style="list-style-type: none"> • Zips are easy to open/close. • Zip may be sealed with waterproof tape. • Extended zip pulls allow for ease and speed of opening zips, if gloves are worn the zip pull provides a bigger area to grip. • Velcro fastening at cuff quick and easy to open/close and adjust. • Popper on chest pocket flap allows for quick access to and closure of pocket. • Drawstring with adjustable toggles give secure adjustability. <p>Suitability Jacket 2:</p> <ul style="list-style-type: none"> • Zip is easy to open/close • Zip pull is small and so more difficult to get hold of if wearing gloves. • Elastic at hood, waist and cuffs fits a range of sizes • Elastic at hood, waist and cuffs protects wearer from poor weather conditions to some extent but is not adjustable. <p>Award any other valid responses.</p>		
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1	4	Describe how e-textiles could be included in the jacket in Figure 1 to increase the safety and comfort of the wearer during outdoor use in winter.	6 marks	AO4				
		<table border="1"> <tr> <td>5-6 marks</td> <td>Excellent knowledge and understanding of how e-textiles could be included in the jacket in Figure 1 to increase the safety and/or comfort of the wearer. Detailed description of a range of appropriate e-textiles with clear key points about how they would make the wearer of the jacket safe and/or comfortable in the context of outdoor use in winter. There will be reference to technical aspects. 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>Good knowledge and understanding of how e-textiles could be included in the jacket in Figure 1 to increase the safety and/or comfort of the wearer. Example/s of e-</td> </tr> </table>	5-6 marks	Excellent knowledge and understanding of how e-textiles could be included in the jacket in Figure 1 to increase the safety and/or comfort of the wearer. Detailed description of a range of appropriate e-textiles with clear key points about how they would make the wearer of the jacket safe and/or comfortable in the context of outdoor use in winter. There will be reference to technical aspects. 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.	3-4 marks	Good knowledge and understanding of how e-textiles could be included in the jacket in Figure 1 to increase the safety and/or comfort of the wearer. Example/s of e-		
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	<p>textiles are listed with some key points about how they would make the wearer of the jacket safe and/or comfortable in the context of outdoor use in winter. There may be reference to technical aspects. At the lower end of the mark band only a few examples of e-textiles given but good knowledge and understanding will be evident.</p>		
<p>1-2 marks</p>	<p>Basic knowledge and understanding of how e-textiles could be included in the jacket in Figure 1 to increase the safety or comfort of the wearer. Example/s of e-textiles are listed although they may not be appropriate for the context of outdoor use in winter. Little or no reference to technical aspects.</p>		
<p>0 marks</p>	<p>No response worthy of credit.</p>		
<p>Indicative content:</p> <p>E-textiles could include:</p> <ul style="list-style-type: none"> • Communication systems and devices such as mobile phones and radios to keep in touch with base support or with search and rescue units. Could be incorporated into hood or sleeve of jacket. • MP3 players, music systems/digital audio built into jacket. • Lights for identification and safety in poor light conditions could be placed on sleeve or back of jacket, or on peak cap on hood. • Built in tracking devices so others can monitor location and progress along a route. • Temperature sensors embedded into jacket for low temperature warning. Could be placed in body of jacket for example underarm area to monitor core body temperature. • Heating devices to keep the wearer warm, integral to body of jacket or possibly in jacket pocket. • Embedded monitoring devices for body functions, health and fitness and medical applications to record how body is performing during physical activity or to warn wearer and base support of any danger signs that may impact on health and performance. Device could be placed near to heart on inside front of jacket or inside cuff to measure pulse. • Camera incorporated in chest panel/pocket flap to record for fun or insurance claims. <p>Technical aspects:</p> <p>An electronic circuit could be incorporated into the jacket to include a conductive thread or fibre, microchip, battery or solar panel on jacket back or shoulders, Bluetooth, speaker.</p> <p>Award any other valid responses.</p>			

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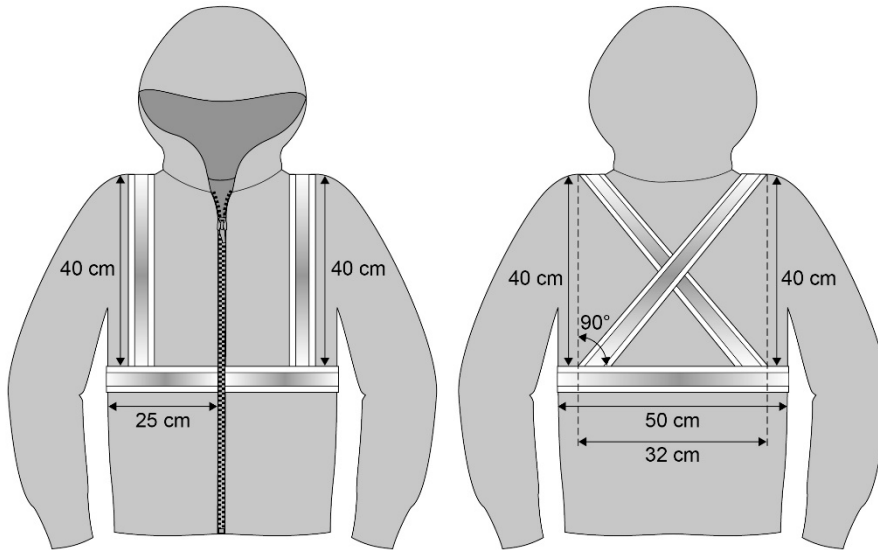
5

Reflective tape is added to the jacket in **Figure 2**. Look at the working drawing for the new jacket design in **Figure 3**.

4 marks

AO4

Figure 3
Working drawing of jacket with reflective tape
Not drawn to scale



Calculate the length of reflective tape needed for each jacket. In your calculation include 3% extra tape for overlap and seam allowances. Give your answer to the nearest cm.

Show your working.

		<p>If there is no working but correct answer is given, award full marks.</p> <p>Indicative content:</p> <table border="1"> <tr> <td> <p>Front or horizontal/vertical lengths Calculation that would lead to 130 or 180 eg $2 \times (25 + 40)$ or $25 + 25 + 40 + 40$ or $(2 \times 50) + (2 \times 40)$ or 130 or 180 seen</p> </td> <td>1 mark (M)</td> </tr> <tr> <td> <p>Diagonal Application of Pythagoras to attempt to find a hypotenuse using 40 and 32. Condone use of 50 for 32 eg $50 + 2 \sqrt{40^2 + 32^2}$ or $\sqrt{2624}$ or 152.4...seen or 102.4...seen Or 51.2...seen</p> </td> <td>1 mark (M)</td> </tr> <tr> <td> <p>Method to add 3% to 'their' total length eg their 282.4×1.03 or their $282.4 \times 3/100 + \text{their } 282.4$ or 290....</p> </td> <td>1 mark (M)</td> </tr> <tr> <td> <p>291(cm), condone 290(cm) Only these answers for final A mark</p> </td> <td>1 mark (A)</td> </tr> </table> <p>Additional guidance Award any other valid methods of working out the answer. 133.9 or 185.4 implies M1M0M1A0 so 2 marks</p>	<p>Front or horizontal/vertical lengths Calculation that would lead to 130 or 180 eg $2 \times (25 + 40)$ or $25 + 25 + 40 + 40$ or $(2 \times 50) + (2 \times 40)$ or 130 or 180 seen</p>	1 mark (M)	<p>Diagonal Application of Pythagoras to attempt to find a hypotenuse using 40 and 32. Condone use of 50 for 32 eg $50 + 2 \sqrt{40^2 + 32^2}$ or $\sqrt{2624}$ or 152.4...seen or 102.4...seen Or 51.2...seen</p>	1 mark (M)	<p>Method to add 3% to 'their' total length eg their 282.4×1.03 or their $282.4 \times 3/100 + \text{their } 282.4$ or 290....</p>	1 mark (M)	<p>291(cm), condone 290(cm) Only these answers for final A mark</p>	1 mark (A)		
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<p>291(cm), condone 290(cm) Only these answers for final A mark</p>	1 mark (A)											

1	6	<p>Smart materials respond to external stimuli. Give two different smart materials that could be used to improve the performance of outdoor winter clothing.</p> <p>1 mark for each correct name or for each description of smart material with indication of how it is used to improve performance.</p> <p>Indicative content:</p> <ul style="list-style-type: none"> Phase changing materials/Outlast/paraffin wax capsules to store heat. 	2 marks	AO4
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		<ul style="list-style-type: none"> • D30/ Impact resistant materials. • Stomatex®/fabric with dome shaped vapour chambers with a tiny pore in the centre that control the release of body heat and perspiration during physical activity. • Thermochromic/heat sensitive material that changes colour at different temperatures. • Hydrochromic/changes colour at different levels of moisture/water. • Photochromic/light sensitive material that changes colour in response to sunlight/UV light. • Memory foam/shape memory materials eg Corpro novo. Memory foam softens in reaction to body heat allowing it to mould to shape. • Phosphorescent material where energy from the sun is absorbed and released slowly in the form of light. <p>Do not give credit for microencapsulation, Fastskin, microfibres, Kevlar®, Nomex®, Thinsulate™, Gore-tex®, Sympatex®, Lycra®.</p> <p>Award any other valid responses.</p>						
2	1	<p>Define what is meant by the term anthropometric data.</p> <p>1 mark for each correct answer, up to 2 marks.</p> <p>Indicative content:</p> <p>The question concerns giving a definition of the term, not about the use of anthropometric data. Do not give credit to percentiles.</p> <ul style="list-style-type: none"> • The standard measurements/data of the average human body. • Measurements of the human body listing the dimensions of each part of the body in a chart. • Average body measurements • Examples: chest, waist, hips etc. • Standardised size charts. • Data relevant to size of clothing/products • Measurement of human beings of all ages and sizes. • Quantative data for human measurement. <p>Award any other valid responses.</p>	2 marks	AO4				
2	2	<p>Explain how designers use anthropometric data and percentiles when designing textile products.</p> <table border="1" data-bbox="304 1816 1198 2024"> <tr> <td>3 marks</td> <td>Clear and detailed knowledge of the use of anthropometric data and percentiles when designing textile products.</td> </tr> <tr> <td>2 marks</td> <td>Some knowledge of the use of anthropometric data and percentiles and how they are used when designing</td> </tr> </table>	3 marks	Clear and detailed knowledge of the use of anthropometric data and percentiles when designing textile products.	2 marks	Some knowledge of the use of anthropometric data and percentiles and how they are used when designing	3 marks	AO4
3 marks	Clear and detailed knowledge of the use of anthropometric data and percentiles when designing textile products.							
2 marks	Some knowledge of the use of anthropometric data and percentiles and how they are used when designing							

		<table border="1"> <tr> <td data-bbox="295 224 443 331"></td> <td data-bbox="443 224 1217 331">textile products. There may be some confusion when referring to percentiles.</td> </tr> <tr> <td data-bbox="295 331 443 495">1 mark</td> <td data-bbox="443 331 1217 495">Basic knowledge of the use of anthropometric data and/or percentiles and how they are used when designing textile products. There may be little or no reference to percentiles.</td> </tr> <tr> <td data-bbox="295 495 443 573">0 marks</td> <td data-bbox="443 495 1217 573">No response worthy of credit.</td> </tr> </table> <p>Indicative content:</p> <ul style="list-style-type: none"> • Anthropometric data can be used to design the dimensions, scale and size of patterns for textile products and garments to fit the human body and to meet customer expectations. • Data can be used to grade patterns to suit a range of different body shapes and sizes. • The product designer/developer will need to refer to anthropometric data to design for a specific target market. • When measuring the human body there are different body shapes/sizes within the population eg taller/petite/regular etc. • An average/median measurement can be used or a range of measurements using percentiles can be used to guide product design. • Percentiles are based on percentages, for example the 5th percentile shows that 5% of anthropometric measurements in the population are this size or smaller. The average/median/mean would be at the 50th percentile. • When designing a product, the designer needs to know whether they are designing for an averaged sized person or to fit a wider range of body measurements using from the 5th percentile to the 95th percentile/normal distribution. • Inclusive design involves products with few restrictions so fit a broad range of sizes/shapes. <p>Do not give credit for tolerance levels.</p> <p>Award any other valid responses.</p>		textile products. There may be some confusion when referring to percentiles.	1 mark	Basic knowledge of the use of anthropometric data and/or percentiles and how they are used when designing textile products. There may be little or no reference to percentiles.	0 marks	No response worthy of credit.		
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3		<p>Mary Quant was an influential designer of the 1960s. Analyse Mary Quant’s fashion designs and evaluate why her fashion designs were popular with teenagers. Give examples of her work in your answer.</p> <table border="1"> <tr> <td data-bbox="295 1771 443 2049">9-12 marks</td> <td data-bbox="443 1771 1217 2049">Excellent analysis of the key aspects of Mary Quant fashion designs and detailed evaluation to support the reasons why Mary Quant fashion designs were popular with teenagers. A range of relevant examples of her designs is given with clear reference to appropriate design features. There may be some minor irrelevant points or lack of clarity in some points but this will not</td> </tr> </table>	9-12 marks	Excellent analysis of the key aspects of Mary Quant fashion designs and detailed evaluation to support the reasons why Mary Quant fashion designs were popular with teenagers. A range of relevant examples of her designs is given with clear reference to appropriate design features. There may be some minor irrelevant points or lack of clarity in some points but this will not	12 marks	AO3				
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	<p>Negative points:</p> <ul style="list-style-type: none"> • Outrage at short styles • Stocking tops and suspenders on show due to short hemlines • Tights initially an expensive alternative to stockings. <p>Examples of Mary Quant designs:</p> <ul style="list-style-type: none"> • Miniskirt - short length, simple style. • Shift dress – simple slightly flared shape, short length. • Hot pants – shorts with bib and straps, short leg length. • Tights – bold colours and patterns/lacey patterns. • Skinny rib sweater – tight fitting, with or without sleeves, high neckline or polo neck, unisex style. • Daisy logo – brand design with simple flower shape. • Pull over pinafore style. • Androgynous trousers/pantaloon/knickerbockers. • Play suits. <p>Award any other valid responses.</p>		
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4	<p>Describe the key design styles of Punk and explain how Punk has influenced designers and helped to shape fashion since the 1970s.</p> <table border="1" data-bbox="304 1066 1198 2040"> <tr> <td data-bbox="304 1066 445 1435">7-9 marks</td> <td data-bbox="445 1066 1198 1435">Demonstrates excellent understanding of how Punk has influenced fashion. Describes in detail the key design styles of Punk and how these are seen in fashion since the 1970's. Clear understanding of many of the elements of Punk fashion and accurate reference to how Punk influenced fashion design. Will show understanding by giving more than one way that Punk has influenced designers. 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 data-bbox="304 1435 445 1700">4-6 marks</td> <td data-bbox="445 1435 1198 1700">Demonstrates good understanding of how Punk has influenced fashion. Describes some key design styles of Punk and how these are seen in fashion since the 1970's. Understanding of some of the elements of Punk fashion. May show understanding by giving one or more examples of specific Punk fashions and/or fashion designers influenced by Punk.</td> </tr> <tr> <td data-bbox="304 1700 445 1964">1-3 marks</td> <td data-bbox="445 1700 1198 1964">Demonstrates basic understanding of the key design styles of Punk and how these are seen in fashion since the 1970's. There may be some lack of clarity or confusion with few examples of the elements of Punk fashion. Limited understanding demonstrated with little or no reference to Punk fashions or fashion designers influenced by Punk.</td> </tr> <tr> <td data-bbox="304 1964 445 2040">0 marks</td> <td data-bbox="445 1964 1198 2040">No response worthy of credit.</td> </tr> </table>	7-9 marks	Demonstrates excellent understanding of how Punk has influenced fashion. Describes in detail the key design styles of Punk and how these are seen in fashion since the 1970's. Clear understanding of many of the elements of Punk fashion and accurate reference to how Punk influenced fashion design. Will show understanding by giving more than one way that Punk has influenced designers. 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.	4-6 marks	Demonstrates good understanding of how Punk has influenced fashion. Describes some key design styles of Punk and how these are seen in fashion since the 1970's. Understanding of some of the elements of Punk fashion. May show understanding by giving one or more examples of specific Punk fashions and/or fashion designers influenced by Punk.	1-3 marks	Demonstrates basic understanding of the key design styles of Punk and how these are seen in fashion since the 1970's. There may be some lack of clarity or confusion with few examples of the elements of Punk fashion. Limited understanding demonstrated with little or no reference to Punk fashions or fashion designers influenced by Punk.	0 marks	No response worthy of credit.	9 marks	AO4
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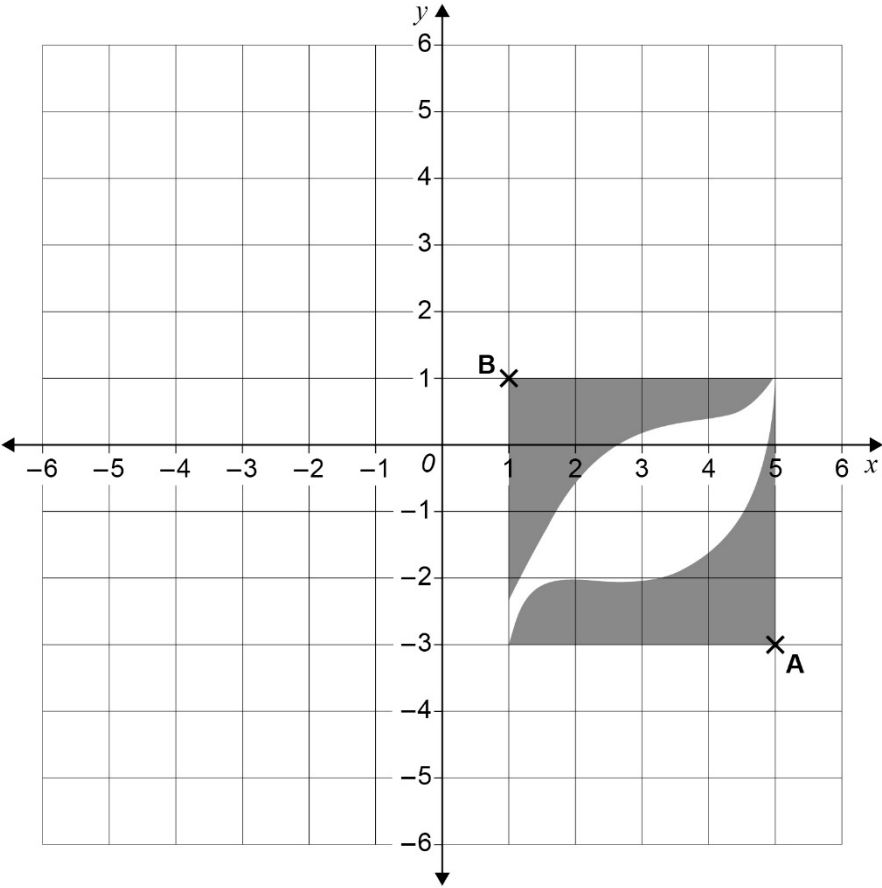
		<p>Indicative content:</p> <p>Key design styles feature:</p> <ul style="list-style-type: none"> • Anti-establishment features such as political song lyrics, offensive slogans, controversial use of images and symbols such as portrait of the Queen, Union Jack, the Crucifix and Nazi Swastika. • Androgynous dressing. • Fetish and bondage style features in clothing. • New ideas that struck out against the fashions of the time and were in tune with youth culture to reflect the social changes linked with unemployment. • Do-it-yourself customisation of clothing by wearer. <p>Punk influenced use of materials such as:</p> <ul style="list-style-type: none"> • PVC • Metal spikes and studs, zips, badges, safety pins and chains • Distressed and ripped clothing • Tartan • Denim <p>Punk clothing influenced garment design and style to include:</p> <ul style="list-style-type: none"> • Black leather jackets • Ballet tutus • Kilts • Slogan T-Shirts • Tight jeans • Fishnet tights <p>Influence of Punk on fashion designers:</p> <ul style="list-style-type: none"> • Vivienne Westwood and Malcolm McLaren created punk fashion designs for their 'Sex' shop influenced by Punk and in turn influencing many other subsequent designers. • Zandra Rhodes - 'Conceptual Chic' collection with bright colours, safety pins and distressed fabrics. • Versace - black silk and Lycra dress, known as 'That Dress' held together by oversized gold safety pins. • Jean Paul Gaultier - androgynous kilt inspired 'man-skirts' • Street wear as fashion with do-it-yourself styling and customisation. • Alexander McQueen eg Highland Rape Collection featuring distressed clothing and tartan. • Katherine Hamnett's slogan T Shirts. • Grunge style featuring distressed denim. 		
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	Award any other valid responses.		
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5	<p>The production of denim jeans can have a negative impact on the environment. Explain the reasons for this negative impact and how it can be reduced.</p> <table border="1" style="width: 100%;"> <tr> <td style="text-align: center; vertical-align: top;">7-9 marks</td> <td>Excellent knowledge and understanding of how production of denim jeans can impact negatively on the environment with detailed reference to aspects such as sourcing of raw materials and the textile processes involved in manufacturing denim jeans. Detailed reasons are given with a range of appropriate and clearly explained key points concerning the impact on the environment in the context of denim jeans and how the impact can be reduced. 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 style="text-align: center; vertical-align: top;">4-6 marks</td> <td>Good knowledge and understanding of how the production of denim jeans can impact on the environment with reference to aspects such as the sourcing of raw materials and the textile processes involved in manufacturing denim jeans. A range of appropriate reasons are listed with some key points concerning the impact on the environment in the context of denim jeans and how the impact can be reduced. There may be few suggestions of how the impact can be reduced at the lower end of the mark band.</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">1-3 marks</td> <td>Basic knowledge and understanding of how the production of denim jeans can impact on the environment with reference to aspects such as the sourcing of raw materials and the textile processes involved in manufacturing denim jeans. Example/s of the impact on the environment in the context of denim jeans are listed although there may be little or no information about how it can be reduced.</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">0 marks</td> <td>No response worthy of credit.</td> </tr> </table> <p>Indicative content:</p> <p>Reasons for impact on the environment:</p> <ul style="list-style-type: none"> • Growing cotton requires a large amount of water to irrigate crops. Intensive farming can alter the landscape as streams or rivers may be diverted and by drying up areas of land. • Standard cotton is cultivated using toxic chemicals such as 	7-9 marks	Excellent knowledge and understanding of how production of denim jeans can impact negatively on the environment with detailed reference to aspects such as sourcing of raw materials and the textile processes involved in manufacturing denim jeans. Detailed reasons are given with a range of appropriate and clearly explained key points concerning the impact on the environment in the context of denim jeans and how the impact can be reduced. 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.	4-6 marks	Good knowledge and understanding of how the production of denim jeans can impact on the environment with reference to aspects such as the sourcing of raw materials and the textile processes involved in manufacturing denim jeans. A range of appropriate reasons are listed with some key points concerning the impact on the environment in the context of denim jeans and how the impact can be reduced. There may be few suggestions of how the impact can be reduced at the lower end of the mark band.	1-3 marks	Basic knowledge and understanding of how the production of denim jeans can impact on the environment with reference to aspects such as the sourcing of raw materials and the textile processes involved in manufacturing denim jeans. Example/s of the impact on the environment in the context of denim jeans are listed although there may be little or no information about how it can be reduced.	0 marks	No response worthy of credit.	9 marks	AO4
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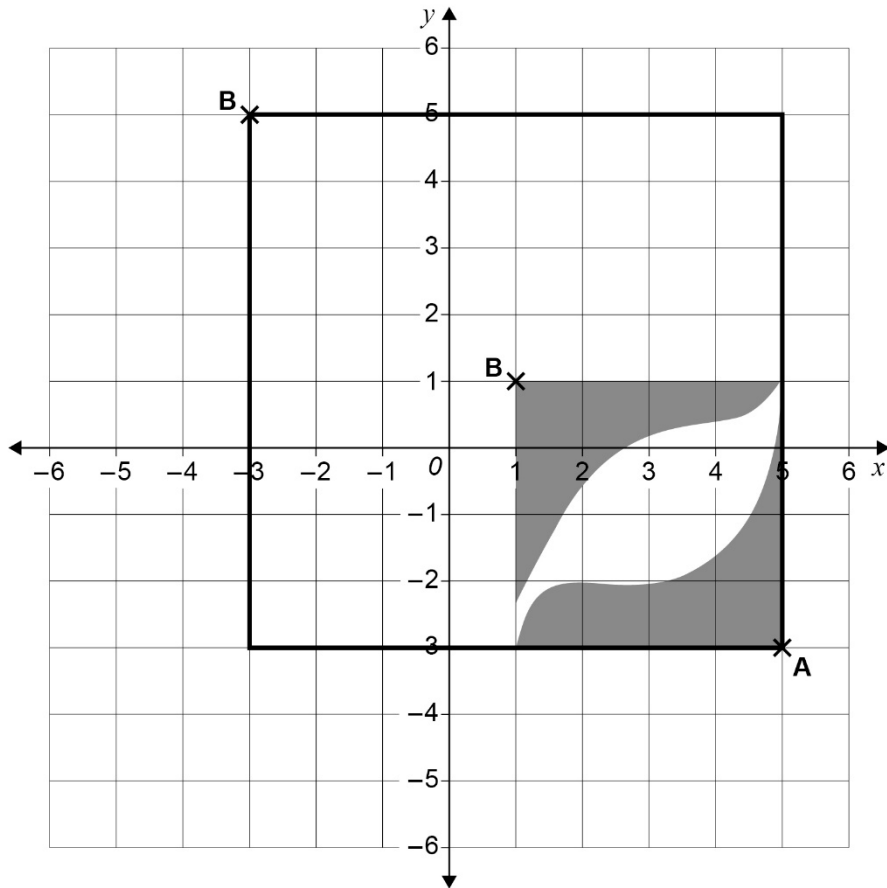
	<p>fertilisers, herbicides and pesticides which are sprayed onto the crop and subsequently present in the soil which has a negative impact on wildlife.</p> <ul style="list-style-type: none"> • Cotton fibres require much processing to process the fibres, spin the yarns and weave the fabric, bleaching and dyeing fibres or jeans, for sizing the yarns with starch, and fabric finishing. • Dyeing uses large quantities of water, energy and produces toxic waste which can pollute air, water and land around the factory site. • Cutting out the fabric pieces produces waste fabric which may be thrown into landfill or incinerated and thus impacts on the environment. • Finishes such as crease or stain resistance increase the amount of processing required. However, they can reduce the amount of detergents and energy required for washing the jeans and prolong the use of the jeans thus reducing the impact on the environment. • Bleaching and distressing techniques such as stonewashing denim uses toxic chemicals and large amounts of energy and water, it creates waste water that needs to be treated. • Place of manufacturing will impact on the environment due to the product miles involved in moving fabric and component stock and part made products between factories in global manufacturing. The use of transport, consumption of fuel and the exhaust fumes released into the atmosphere will impact on the environment. • Some denim fabric has a mixed fibre content of cotton and elastane. It is more difficult to separate the fibres during recycling than with 100% cotton denim. <p>How impact can be reduced:</p> <ul style="list-style-type: none"> • Use organic cotton grown without the use of toxic chemicals with sustainable crop management. • Use naturally coloured cotton or natural indigo dye/organic dye. • Use some recycled denim rather than just virgin cotton. • Produce 100% cotton denim as cotton is biodegradable over time, so has less impact on the environment than synthetic fibres if thrown away into landfill. • Use sustainable components such as uncoated metal buttons, to prevent leeching of heavy metals into the soil when jeans are discarded in landfill. • Use 100% stainless steel buttons instead of blended metals and plastics, as these can be recycled. • Pattern layout can be more efficiently arranged using CAM as computer generated lay plans are more efficient and pattern pieces fit together with less wasted fabric. • Use sustainable finishes such as one consisting of potato starch, mimosa flower and Marseilles soap. • Small reductions in waste and increases in efficiency can reduce the impact on the environment when producing large quantities of denim jeans. • Increase efficiency in manufacturing by reducing the number of processes in the manufacture of denim fabric to use less toxic 		
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	<p>chemicals, water and energy.</p> <ul style="list-style-type: none"> • Include automated manufacturing processes to improve quality and therefore reduce number of inferior products made. • Minimise waste by using JIT systems to reduce over ordering and stock degradation. • Use green renewable sources of energy to power production such as solar, wind or hydroelectric energy. • Use of biofuels in transportation reduces the impact on the environment of fashion miles. <p>Award any other valid responses.</p>		
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6	<p>Figure 4 shows a stitched logo.</p>  <p style="text-align: center;">Figure 4</p>	AO4	
6	<p>1 Give the coordinate for the datum point A.</p> <p>Indicative content:</p> <p>5,-3, (5,-3), $5x-3y$, $\left(\frac{5}{-3}\right)$, $\left(\frac{5}{-3}\right)$</p>	1 mark	
6	<p>2 The logo is enlarged from the datum point A by a scale factor of 2. Give the new coordinate for datum point B.</p>	1 mark	

Indicative content:

$$-3, 5, (-3, 5), -3x + 5y, \left(\frac{-3}{5}\right), \left(\frac{-3}{5}\right)$$



7	<p>A main fabric and a lining fabric are required to make a waistcoat. The main fabric costs £8.32 per metre and 0.75 metres of fabric is needed for each waistcoat.</p> <p>The total fabric budget for producing 1200 waistcoats is £9000.</p> <p>Two different widths of lining fabric are available to use:</p> <ul style="list-style-type: none"> • Lining fabric A: £2.80 per metre (33% less than main fabric is required) • Lining fabric B: £4.60 per metre (64% less than main fabric is required) <p>Calculate the cost of each fabric and state which lining fabric is within the total fabric budget.</p> <p>You must show your working.</p> <p>Indicative content:</p>	4 marks	AO4
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		<p>Some working must be completed. If only lining fabric A or B is given without working, award 0 marks.</p> <p>Answer must be supported by some working out to gain the last mark for lining fabric A or B.</p> <table border="1" data-bbox="304 483 1203 1877"> <tr> <td data-bbox="304 483 951 752"> <p>Correct calculation to find unit or total cost of main fabric eg $8.32 \times 0.75 \times 1200$ or 6.24 or 7488 or 1512</p> </td> <td data-bbox="951 483 1203 752"> <p>1 mark (M)</p> </td> </tr> <tr> <td data-bbox="304 752 951 1055"> <p>Correct calculation to find unit or total cost of lining fabric A $2.8 \times 0.75 \times 0.67 \times 1200$ or 1.407 or 1.41 or 1688.40 or 1692</p> </td> <td data-bbox="951 752 1203 1055"> <p>1 mark (M)</p> </td> </tr> <tr> <td data-bbox="304 1055 951 1357"> <p>Correct calculation to find unit or total cost of lining fabric B $4.6 \times 0.75 \times 0.36 \times 1200$ or 1.242 or 1.24 or 1490 or 1488</p> </td> <td data-bbox="951 1055 1203 1357"> <p>1 mark (M)</p> </td> </tr> <tr> <td data-bbox="304 1357 951 1704"> <p>Lining Fabric B with correct working</p> <p>If incorrect method or values used to calculate lining fabric A and B cost, final mark can still be given for their conclusion as long as working supports final answer and includes comparable values (ie two unit costs or two total costs with or without main fabric added) with one of these values/calculations correct.</p> </td> <td data-bbox="951 1357 1203 1704"> <p>1 mark (Aft)</p> </td> </tr> <tr> <td data-bbox="304 1704 951 1877"> <p>Special Case If student has read question as Fabric A being 33% of main fabric and Fabric B being 64% of main fabric, with all subsequent working correct, MAX 3 can be awarded</p> </td> <td data-bbox="951 1704 1203 1877"></td> </tr> </table> <p>Additional guidance Award any other valid methods of working out the answer. 9176.4 or 8978.4 or 8976 with no more is 2 marks 7.65 or 7.48...with no more is 2 marks</p>	<p>Correct calculation to find unit or total cost of main fabric eg $8.32 \times 0.75 \times 1200$ or 6.24 or 7488 or 1512</p>	<p>1 mark (M)</p>	<p>Correct calculation to find unit or total cost of lining fabric A $2.8 \times 0.75 \times 0.67 \times 1200$ or 1.407 or 1.41 or 1688.40 or 1692</p>	<p>1 mark (M)</p>	<p>Correct calculation to find unit or total cost of lining fabric B $4.6 \times 0.75 \times 0.36 \times 1200$ or 1.242 or 1.24 or 1490 or 1488</p>	<p>1 mark (M)</p>	<p>Lining Fabric B with correct working</p> <p>If incorrect method or values used to calculate lining fabric A and B cost, final mark can still be given for their conclusion as long as working supports final answer and includes comparable values (ie two unit costs or two total costs with or without main fabric added) with one of these values/calculations correct.</p>	<p>1 mark (Aft)</p>	<p>Special Case If student has read question as Fabric A being 33% of main fabric and Fabric B being 64% of main fabric, with all subsequent working correct, MAX 3 can be awarded</p>			
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	9176.4 and 8978.4 or 8976 with no more is 3 marks 7.65 and 7.48...with no more is 3 marks		
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8	<p>Explain how technological advances have impacted on the care of fashion and textile products.</p> <table border="1" style="width: 100%;"> <tr> <td style="text-align: center; vertical-align: top;">7-9 marks</td> <td>Demonstrates excellent understanding of technological advances and how they have impacted on the care of fashion and textile products. Clearly explains in detail the key aspects of the care of fashion and textile products and how a range of developments in technology have impacted on the care of fashion and textile products. 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 style="text-align: center; vertical-align: top;">4-6 marks</td> <td>Demonstrates good understanding of technological advances and how they have impacted on the care of fashion and textile products. Explains some of the key aspects of the care of fashion and textile products and how some developments in technology have impacted on the care of fashion and textile products.</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">1-3 marks</td> <td>Demonstrates basic understanding of technological advances and how they have impacted on the care of fashion and textile products. Refers to one or more of the key aspects of the care of fashion and textile products with little or no information about how developments in technology have impacted on the care of fashion and textile products.</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">0 marks</td> <td>No response worthy of credit.</td> </tr> </table> <p>Indicative content:</p> <ul style="list-style-type: none"> • Washing and drying natural fibres can be a lengthy and arduous process however, developments in synthetic fibres have replaced the use of some natural fibres and polyester and cotton blends are easier to care for than pure cotton. • Automatic washing machines to wash, spin and tumble dry reduce amount of labour required and make it quicker to launder textile products at home. For this reason, clothing is generally washed more frequently than at the start of the 20th century. • Many textile products can be washed and ironed at lower temperatures to reduce use of energy. • Easy care synthetic fabrics are less absorbent, more crease resistant, lighter and quicker to dry. • Less ironing required due to use of synthetic fibres and non- 	7-9 marks	Demonstrates excellent understanding of technological advances and how they have impacted on the care of fashion and textile products. Clearly explains in detail the key aspects of the care of fashion and textile products and how a range of developments in technology have impacted on the care of fashion and textile products. 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.	4-6 marks	Demonstrates good understanding of technological advances and how they have impacted on the care of fashion and textile products. Explains some of the key aspects of the care of fashion and textile products and how some developments in technology have impacted on the care of fashion and textile products.	1-3 marks	Demonstrates basic understanding of technological advances and how they have impacted on the care of fashion and textile products. Refers to one or more of the key aspects of the care of fashion and textile products with little or no information about how developments in technology have impacted on the care of fashion and textile products.	0 marks	No response worthy of credit.	9 marks	AO4
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	<p>crease finishes.</p> <ul style="list-style-type: none"> • Soap used for cleaning textile products in block form or as or flakes of soap replaced by detergents developed in liquid or powder form for use with specific fabrics, some contain enzymes to remove stains. • Fabric softeners used to condition fabric. • Dry cleaning uses solvents to dissolve soiling and stains, particularly for more delicate fabrics, for heavily embellished textile products or those with more complex structures or with a variety of different fabrics or components included in the design of the product. Water is not used in dry cleaning so cellulosic fibres do not swell and so do not shrink. No moisture or heat is used, so delicate fabrics such as wool or silk are not damaged by the process. • Wool fibres liable to shrink and felt easily if wash at too warm a temperature and with too much agitation. Pure new wool has been developed that is easier to wash than standard wool. • Bleaching chemicals or sunlight used to whiten cotton replaced by development of very white fabrics which are dyed with colourless dyes that cause the fabric to reflect ultraviolet light. This makes the textile product look brighter and whiter. Bleaching is not recommended for fabrics that have these fluorescent whitening agents as they are damaged by bleach. • Stain resistant finishes applied to fabrics to reduce amount of cleaning required eg Teflon™, Scotchguard™. • Thermoplastic synthetic fibres can be given permanent pleats or creases to reduce need for ironing folds into place. • Microencapsulation of deodorising and antibacterial substances extend the period of wear before washing. • Nano-technology used to make stain repellent fabrics. • Some fabric is self-cleaning such as cotton coated with titanium dioxide, which uses sunlight to break down dirt and bacteria. • Antimicrobial finishes that inhibit growth of microorganisms eg Purista®, silver. <p>Award any other valid responses.</p>		
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