

Please write clearly in block capitals.

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I declare this is my own work.

A-level

DESIGN AND TECHNOLOGY: FASHION AND TEXTILES

Paper 1 Technical Principles

Time allowed: 2 hours 30 minutes

Materials

For this paper you must have:

- normal writing and drawing instruments
- a scientific calculator.

Instructions

- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.

For Examiner's Use	
Question	Mark
1–2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14–16	
17	
18	
19	
TOTAL	



Answer **all** questions in the spaces provided.

0 1

Complete **Table 1** by inserting the correct fibre from the list below into each fibre category.

Do **not** use any fibre more than once.

[6 marks]

Ceramic Kevlar[®] Lycra[®] Nylon Polyester
Polyvinyl PTFE Ramie Silk Tactel[®]

Table 1

Fibre category	Fibre
Aramid	
Cellulosic	
Chlorofibres	
Fluorofibres	
Inorganic	
Protein	

0 2

State **three** properties of Gore-Tex[®] that make it suitable for outdoor clothing.

[3 marks]

- 1 _____

- 2 _____

- 3 _____

9



0 3 . 1 Describe the appearance and characteristics of crêpe fabric.

[3 marks]

0 3 . 2 Describe the appearance and characteristics of gingham fabric.

[3 marks]

0 3 . 3 Describe the appearance and characteristics of taffeta fabric.

[3 marks]

9

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ANSWER IN THE SPACES PROVIDED**

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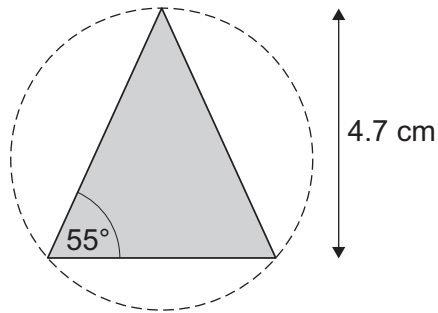


0 5

0 5

Figure 1

Logo for Sportswear



0 5 . 1

Calculate the amount of thread required to stitch around the circle in **Figure 1**.

The radius of the circle is 3.5 cm.

Give your answer to the nearest cm.

Show your working.

[2 marks]

Answer _____ cm



0 5 . 2 The shaded area of the logo in **Figure 1** is an isosceles triangle.

Calculate the area of the triangle.

Show your working.

[4 marks]

Answer _____ cm²

6

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0 8 . 1 Table 2 shows production in tonnes for five fibre producing countries.

Complete Table 2.

[1 mark]

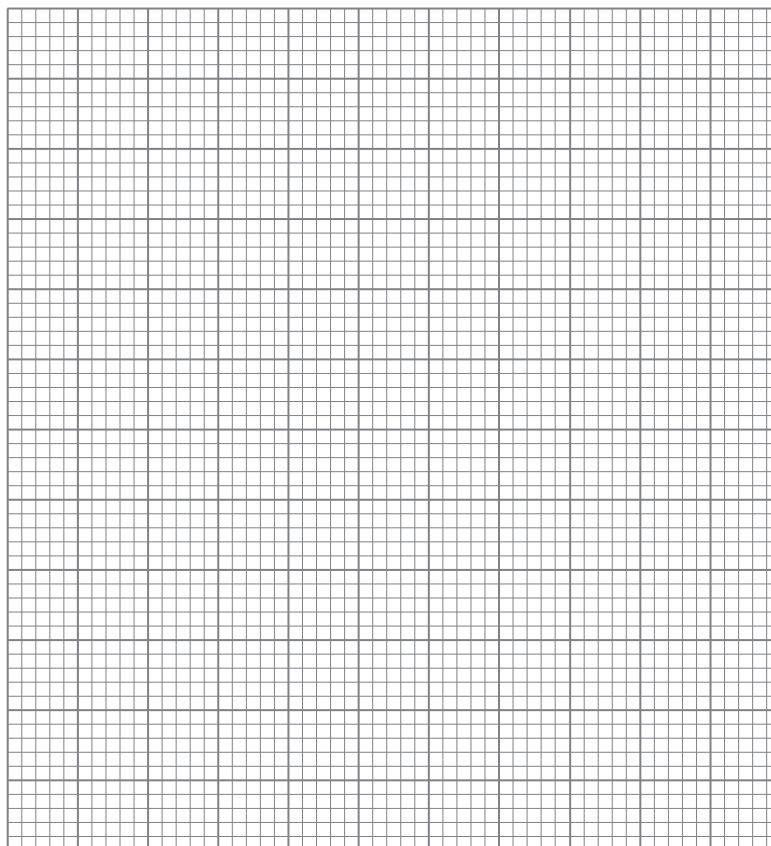
Table 2

	Cotton	Nylon	Polyester	Viscose	Wool	Mean
Brazil	6 500	8 600	9 545	12 600	975	7 644
China	12 250	25 000	46 300	18 400	14 650	23 320
India	14 500	15 500	9 800	16 250	850	11 380
Portugal	7 000	3 575	2 345	850	3 450	3 444
USA	10 250	34 675	39 500	11 950	6 425	

0 8 . 2 Draw a suitable diagram to represent the data for the **mean** fibre production of the five countries shown in **Table 2** in Question **08.1**.

Use the graph paper below.

[3 marks]



4



1 4

A manufacturer prints 2150 metres of fabric. It takes 11 minutes to print **each** metre.

The design is changed for a second batch of 1980 metres, and **each** metre takes 9 minutes to print.

Calculate the percentage decrease in the time it takes to print the second batch.

Show your working.

[4 marks]

Answer _____ %

1 5

Give **two** reasons why piping is used on home furnishings.

[2 marks]

1 _____

2 _____

1 6

State **two** reasons why a designer might use a prediction company when creating a new collection.

[2 marks]

1 _____

2 _____

8

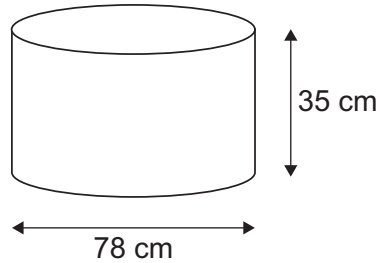


1 8

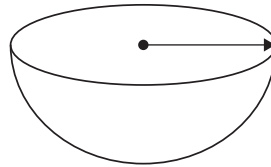
A manufacturer makes 3D shapes for use in a soft play area.

One shape is the cylinder illustrated in **Figure 3**.

Figure 3



They also make a hemisphere of the **same volume** as the cylinder.



1 8 . 1

Show that the radius of the hemisphere is 43 cm to the nearest cm.

The volume of a hemisphere is found using $V = \frac{2}{3} \pi r^3$

[4 marks]



1 8 . **2** It costs 8 p to fill one hemisphere with child-safe wadding.

Work out the cost of 1 m^3 of this wadding to the nearest penny.

Show your working.

[2 marks]

Answer _____ p

6

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2 8



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