

Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Gyffredinol Addysg Uwchradd

140/02

DESIGN AND TECHNOLOGY

PAPER 2

FOCUS AREA: GRAPHIC PRODUCTS

(Foundation Tier – Grades G to C)

P.M. TUESDAY, 6 June 2006

(1½ hours)

	Leave Blank
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
TOTAL MARK	

ADDITIONAL MATERIALS

You will need basic drawing equipment and coloured pencils for this examination.

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Where the space is not sufficient for your answer, continue the answer at the back of the book, taking care to number the continuation correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

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

1. The photograph shows a children's jigsaw puzzle that includes a "MAGIC" element.
- The jigsaw is made from 2000 micron **greyboard** with the printed full colour picture bonded onto one side of the board and a sheet with the maker's name printed on it, stuck onto the back.
 - Black **thermochromic** ink is printed onto the picture to provide the "MAGIC" element of the jigsaw puzzle.
 - The picture surface of the jigsaw puzzle is **laminated** with a gloss film.
 - The pieces are **die cut**.
 - The box is made of 700 micron **greyboard** covered with a glossy image of the jigsaw puzzle and information about the product.

Study the photographs and then answer the questions that follow.



(a) (i) **List the four** coloured inks that are used in full colour printing. [4]

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

(ii) Thermochromic ink is used to provide the ‘magic’ element in the jigsaw puzzle. It changes colour when it is heated by rubbing.

Thermochromic ink is called a material. [1]

(iii) The jigsaw puzzle is laminated with a gloss film to

..... [2]

(iv) *Die cutting* is used to stamp out the jigsaw pieces. **Explain** why this method is suitable. [2]

.....
.....

(b) **Give one** reason why greyboard is suitable for making the jigsaw puzzle. [2]

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

(c) Two of the images printed on the jigsaw box are shown below. **Circle** the correct word and **complete** the sentence that follows.

(i)



This symbol indicates that the product can be **Recycled / Reduced**.

It means that

..... [2]

(ii)

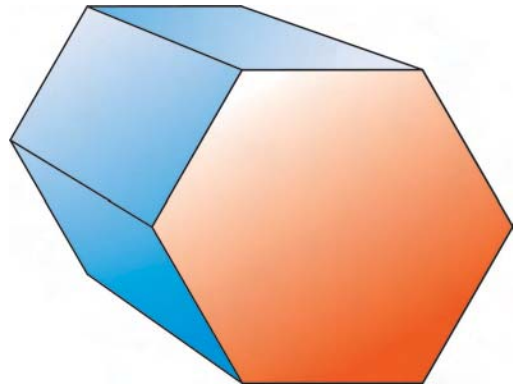
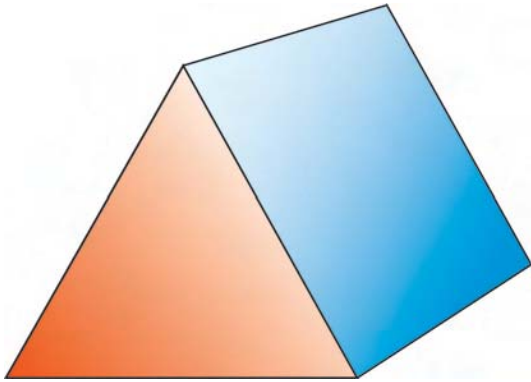


This symbol shows a **Bar Graph / Bar Chart / Bar Code**.

It is used by shops for

..... [2]

2. Packaging boxes for sweets are made in different shapes and sizes. Two are shown below. One is a triangular prism and the other a hexagonal prism.

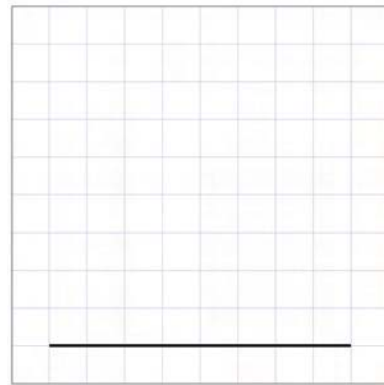


- (a) **Geometrically construct** the shape of the ends of the prisms on the grids below.
Show ALL your work for the construction of the shapes.

- (i) Geometrically construct the triangular end of the prism.

It is a triangle with **each** of its sides 40mm long.

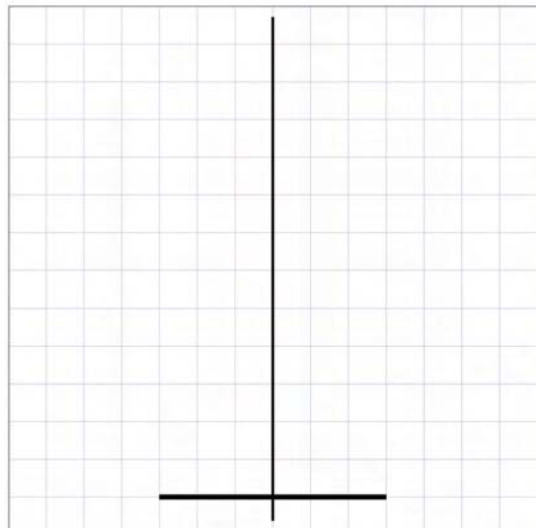
The construction has been started for you.



[4]

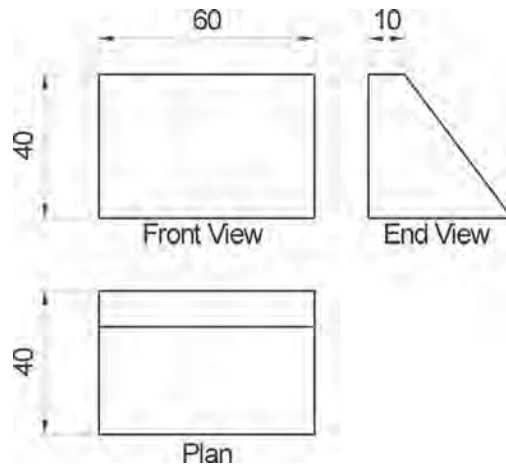
- (ii) Geometrically construct the hexagonal end of the prism (6 sides).
It is a hexagon with **each** of its sides 30mm long.

The construction has been started for you.



[6]

(b) A drawing of a *different* box is shown below.



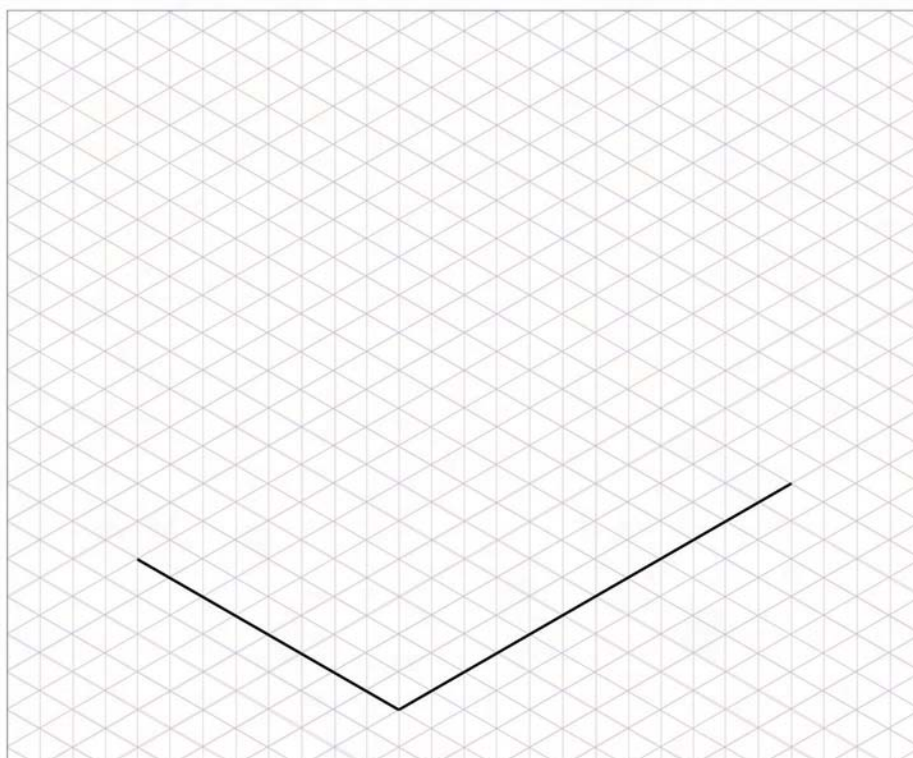
(i) **State** the proper name of this type of drawing.

..... Angle Drawing [2]

(ii) **Using** the grid below, **make** an accurate ISOMETRIC drawing of the box shown. Use **WEIGHTED LINES** (Thick & Thin Lines) in your answer.

Marks will be awarded for:

- an accurate full size outline of the shape; [8]
- using weighted lines (Thick & Thin Lines) on your isometric drawing to make the drawing look more like a solid object. [5]



3. An advertising leaflet for holiday flats has been designed. The leaflet is 200mm square when it is folded. Photographs of the leaflet are shown below.



- (a) The leaflet is folded as shown.

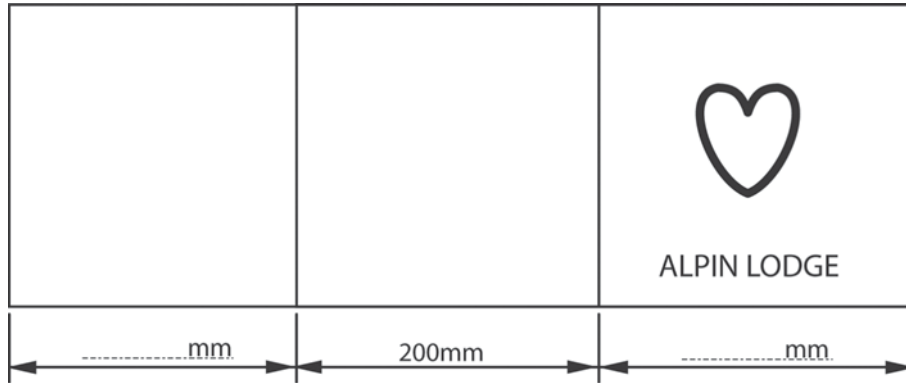


Place a tick (✓) alongside the name of this type of fold.

[1]

Type of Fold	
GATEFOLD	
BARREL FOLD	
FRENCH FOLD	

- (b) For the leaflet to fold correctly, each page has to be a different width. **Complete** the sketch below by inserting the missing dimensions. The centre dimension has been done for you. [4]



- (c) The leaflet has to be printed on a material that will allow it to stand up on its own when displayed (*like a birthday card*).

- (i) From the list below, **tick** (✓) the most appropriate material for making the leaflet and then **give one** reason for your choice.

Material	Tick (✓)
40 gsm detail paper	
80 gsm wove paper	
160 gsm coated paper	
1200 micron card	

[1]

Reason

..... [2]

- (ii) **State** the meaning of **gsm** in the table above.

g per s m [3]

- (iii) **State** what the term **1200 micron** tells you about the card. [1]

.....

- (iv) **Convert 1200 micron** into millimetres (mm). [1]

.....

- (d) Some of the photographs in the leaflet have been altered so that they fade into each other. This process is done using computer software.



From the list below, **underline** which type of software package you would use. [1]

A Bitmap editing package / A vector drawing package / A video editing package.

- (e) Colour separations are made before the leaflet is printed. **Explain** what colour separation is. [2]

.....

.....

- (f) It is decided to put the photographs of the accommodation onto a web site.

From the list below, **underline** the most appropriate file format in which to save the images. [1]

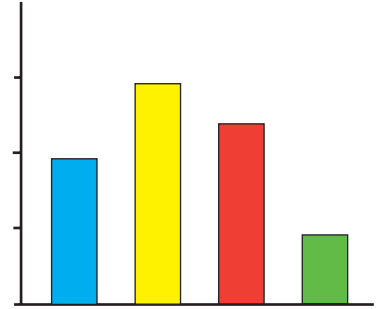
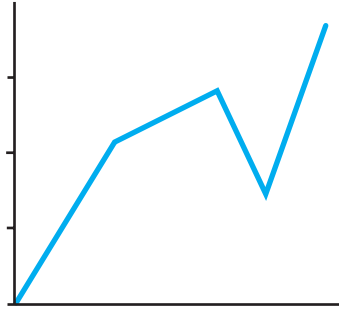
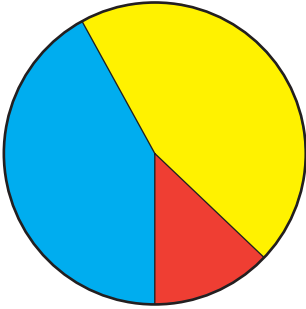
.JPG / .GIF / .TIF

4. Graphs and charts are often used to make information easier to understand.

- (a) The pictures show three common methods of presenting data.
From the list below, **select** the correct name for **each**.

[3]

BAR CHART PIE CHART LINE GRAPH GANTT CHART

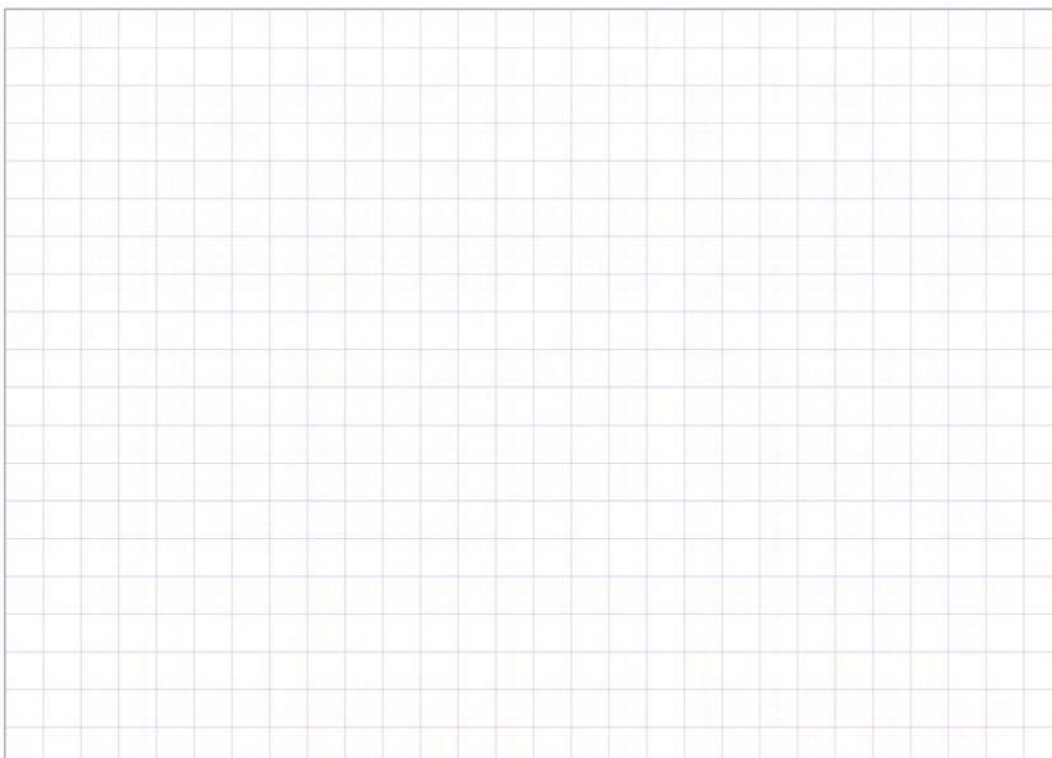


- (b) Bottled water is a popular drink. The price of a bottle of water is 48 pence.
This is broken down as shown in the table below.

Materials	10%
Manufacturing costs	45%
Advertising	7.5%
Profit	20%
VAT	17.5%

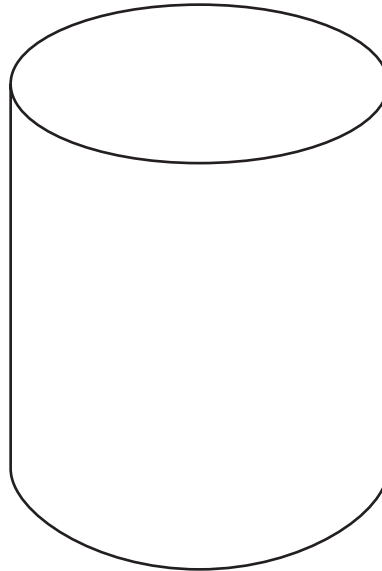
Draw a graph or chart in the space below to illustrate the information in the table.

[8]



(c) Shading or rendering is often used to make a drawing look more solid and three-dimensional.

(i) Use shading to make the shape below look like a solid cylinder. [5]



(ii) State two other reasons for rendering a drawing.

Reason 1: [1]

Reason 2: [1]

5. A wrist-watch manufacturer is introducing a new watch aimed at young people who take part in sports. The watch will have functions useful for sport, (stop watch, heart rate monitor and it will be waterproof).

(a) A name and a logo for the new watch are required.
The name must appeal to young sporty people and be short and easy to remember.
The logo must fit in a circle of 80mm diameter.

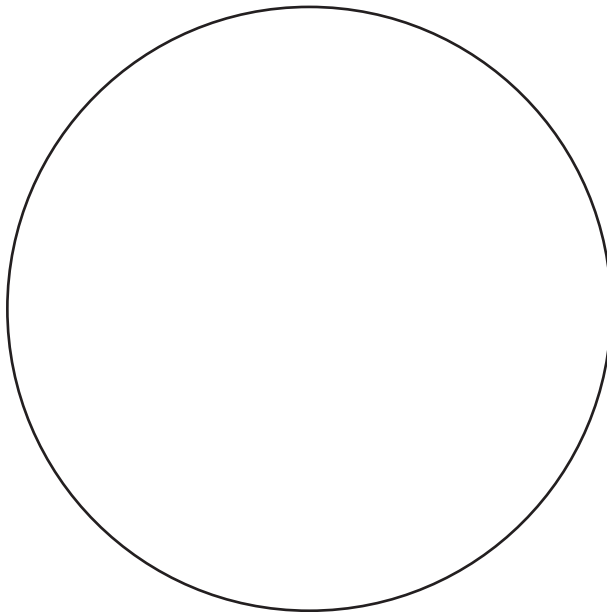
(i) On the line below, **write** down the name you are going to use.

Chosen name for the watch: [1]

(ii) In the circle drawn below, **design** a logo using the name of the watch.

Marks will be awarded for:

- designing a logo that uses the chosen name or an abbreviation; [3]
- using all the space available; [1]
- quality of drawing; [2]
- quality of use of colour. [2]

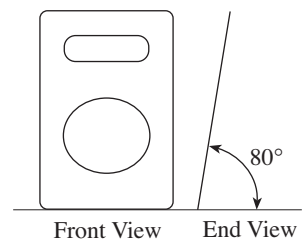
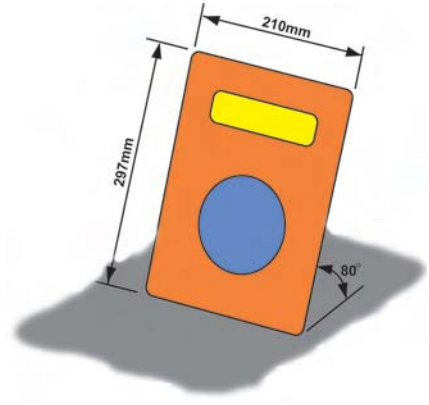


- (b) An A4 sized point of sale display for a shop counter is required.
The image on the right shows the graphic to be used on the point of sale display.

Design a supporting stand that will hold this graphic in position on the counter.

Marks will be awarded for:

- (i) designing a stand that:
 - holds the graphic securely in place; [1]
 - holds the graphic at approximately 80 degrees to the horizontal; [2]
 - is stable and hard to knock over; [1]
 - folds flat for posting to the shop; [2]
 - locks in place to stop it folding up in use. [2]
- (ii) stating a suitable material to be used to make the stand. [2]



- (c) Make an **orthographic drawing** to show the details of your design for the stand. You should use only as many views as are needed to give the information. You must add the **three (3)** most important dimensions to your drawing.

[6]

