



Graphic Communication

Date – December 2013

Duration – 1 hour and 30 minutes

Fill in these boxes and read what is printed below.

Name

Form Class

Teacher

Class Set

Total marks - 60

Attempt ALL questions.

All dimensions in mm.

All technical sketches use 3rd angle projection.

You may use rulers, compasses or trammels for measuring.

Read every question carefully before you attempt it.

Write your answers clearly in the spaces provided, using **blue** or **black** ink.

Before leaving the examination room you must give your answer booklet to the Invigilator.
If you do not, you may lose all the marks for this paper.

1. A graphic designer has produced three promotional layouts.

(a)

(i) State one instance where alignment has been used in Layout 1. (1 mark)

The vertical guideline & the 'DESIRE' headline.

The text & the vertical guideline.

(ii) Describe the effect that alignment has on Layout 1. (1 mark)

Well organised, Well laid out, Good use of white space, Creates flow to certain areas

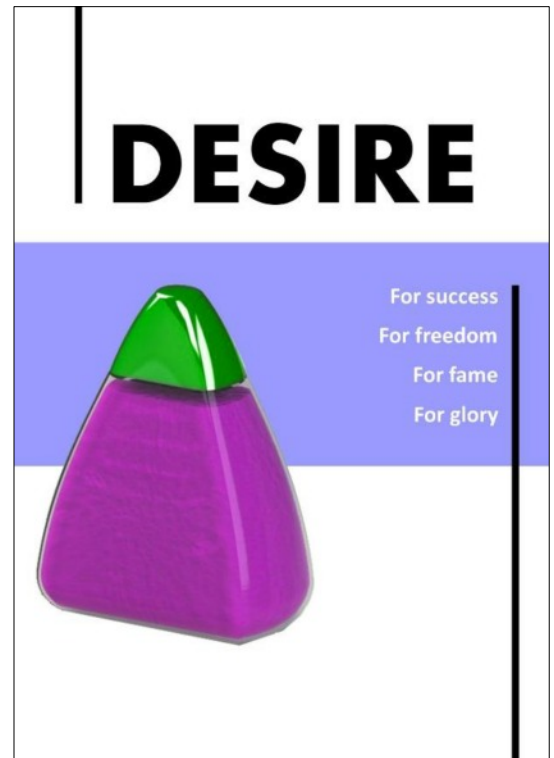
(b)

Describe two ways in which the designer has created unity in Layout 2. (2 marks)

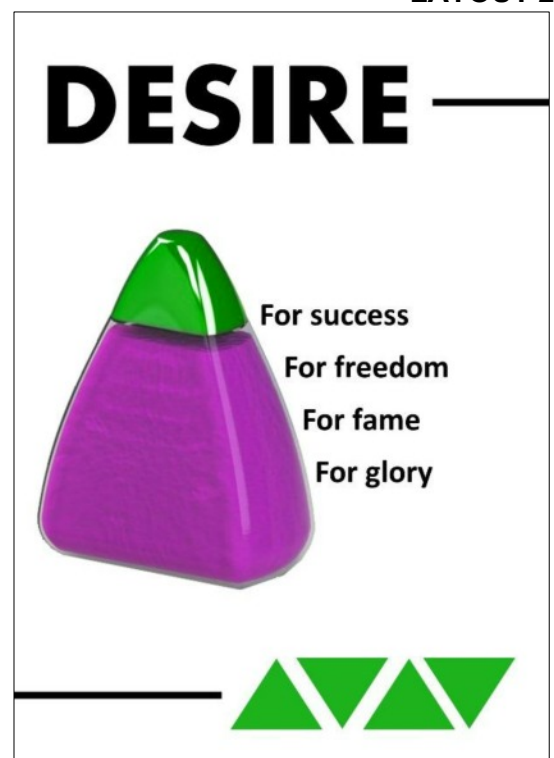
Linking & using the green triangles with the green bottle cap.

Same font or typeface used.

LAYOUT 1



LAYOUT 2



1. (continued)

(c)

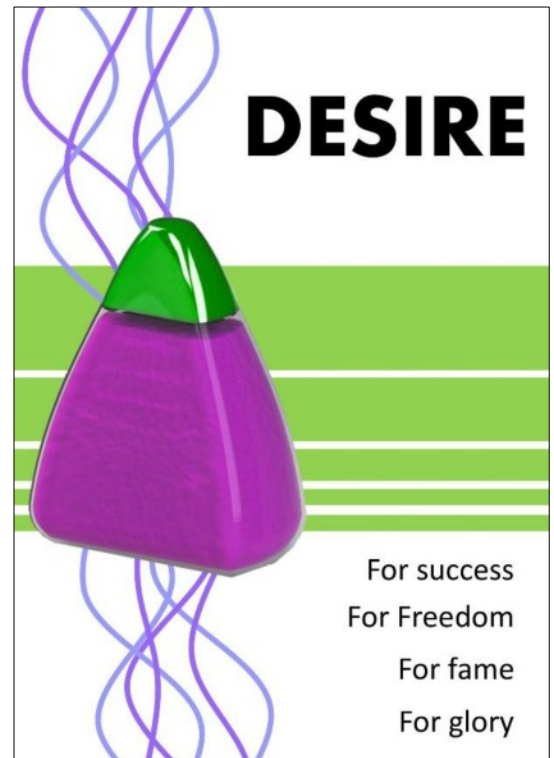
Describe two methods used to create contrast in Layout 3. (2 marks)

The size of the headline & other text.

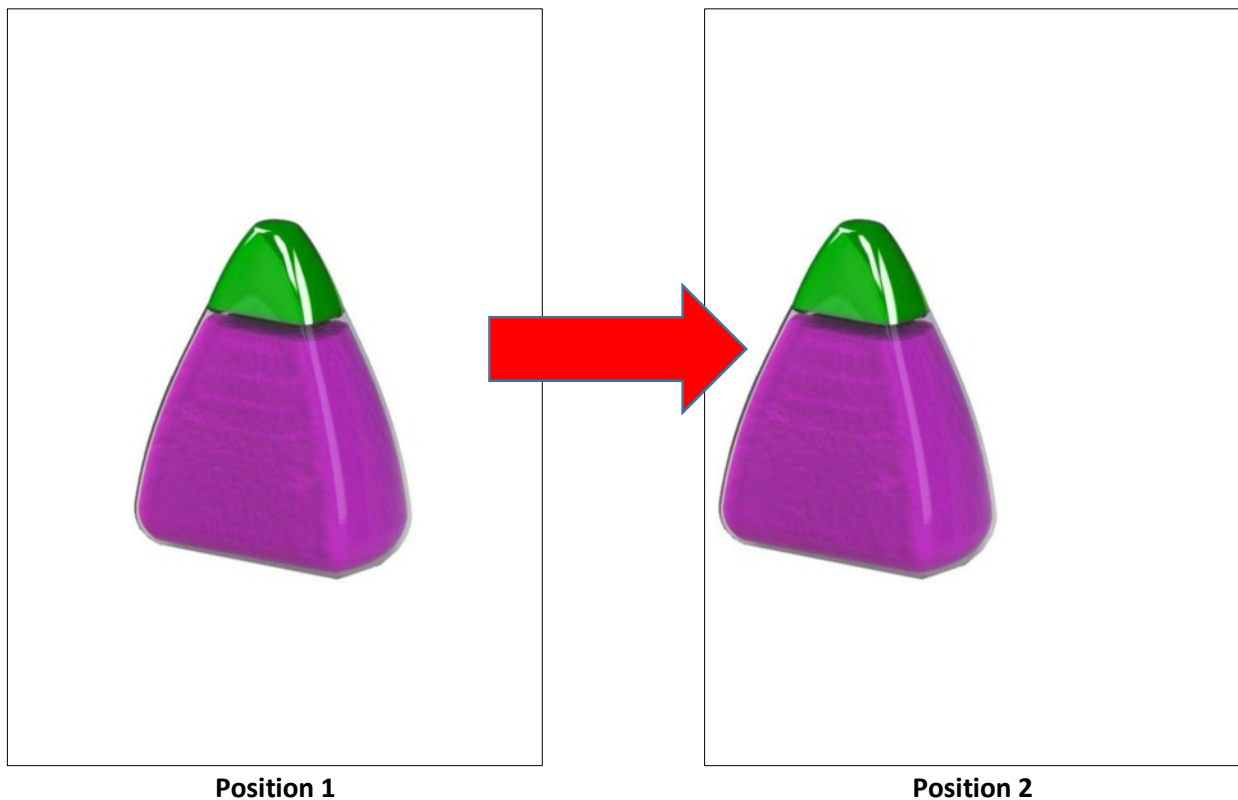
The wavy lines & the horizontal stripes.

The colour of the text & background.

LAYOUT 3



Early in the design process, the designer decided it was important to move the bottle away from Position 1 to Position 2 as shown below. (1 mark)



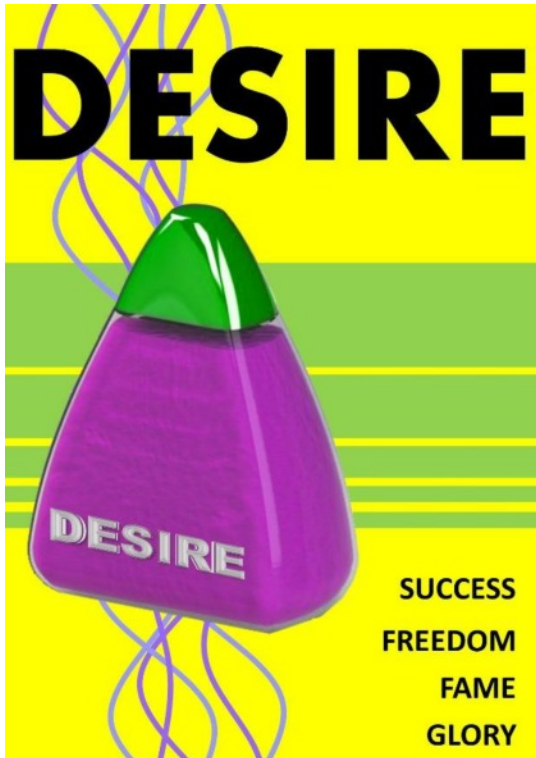
(d)

State one reason for doing this. (1 mark)

To allow a better area of white space to put text etc.

1. (continued)

In the final DTP layout shown below, the designer chose **yellow** for the background colour.



(e)

(i) State whether yellow is an advancing or receding colour. (1 mark)

Advancing colour - warm.

(ii) Describe the effect that the yellow background colour has on the bottle. (1 mark)

Make the bottle stand out & feel as if it is coming out of the page - depth.

The colours used on the bottle itself are shades of purple and green. The designer wishes to create a more **harmonious** colour scheme on the bottle and decides to change the red shade to another colour.

(f) State a **tertiary** colour the designer should try instead of red. (1 mark)

Blue-green, Violet-blue

The 'DESIRE' promotion will be published in a magazine and caring for the environment is important to the magazine publisher.

(g) State **two** ways in which the publisher can reduce the magazine's impact on the environment. (2 marks)

Recycled paper, environmentally friendly ink, smaller documents.

Using DTP software to produce a magazine brings many benefits to the publishing industry and its workforce.

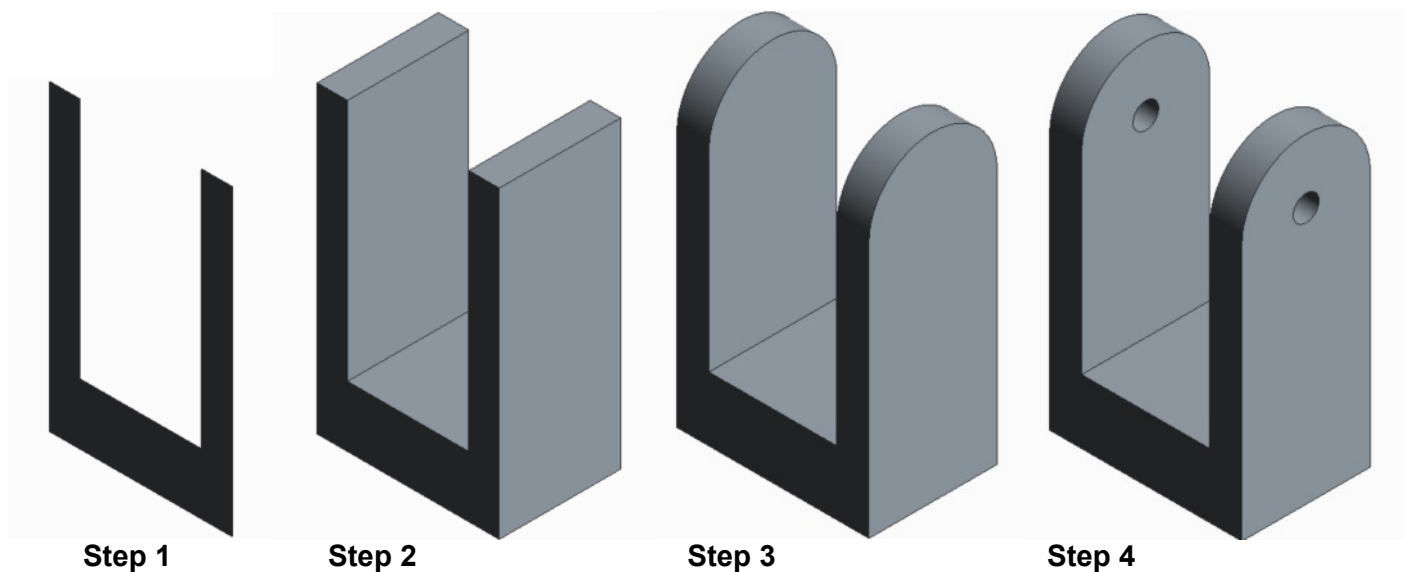
(h) State **one** benefit that DTP has brought to the publishing industry (other than environmental benefits). (1 mark)

Ease of modification, communicating & sending information electronically, no paper

Backups, creativity, speed, accuracy, ability to work from home.

2. A bracket is designed to hold a pulley wheel used to hoist sails on ships. The preliminary sketch is shown on the next page. 3D modelling software was used to create a 3D model of the bracket.

The **profile** shown in Step 1 was drawn using CAD software using the sizes on the preliminary sketch. The “extrude” command is used to make the profile from Step 1 into the 3D model shown in Step 2.



(a) State the size of the extrusion used at Step 2. (1 mark) 40 mm

The **completed** 3D model is shown in Step 4.

(b) Describe, **with reference to correct dimensions and 3D CAD modelling terms**, how you would use 3D modelling software to complete the model from Step 3 to Step 4.

You may use sketches to support your answer.

(3 marks)

Look at side surface, sketch onto side

surface, sketch circle.

Dimension circle to 8 mm diameter,

dimension centre point 20 mm from

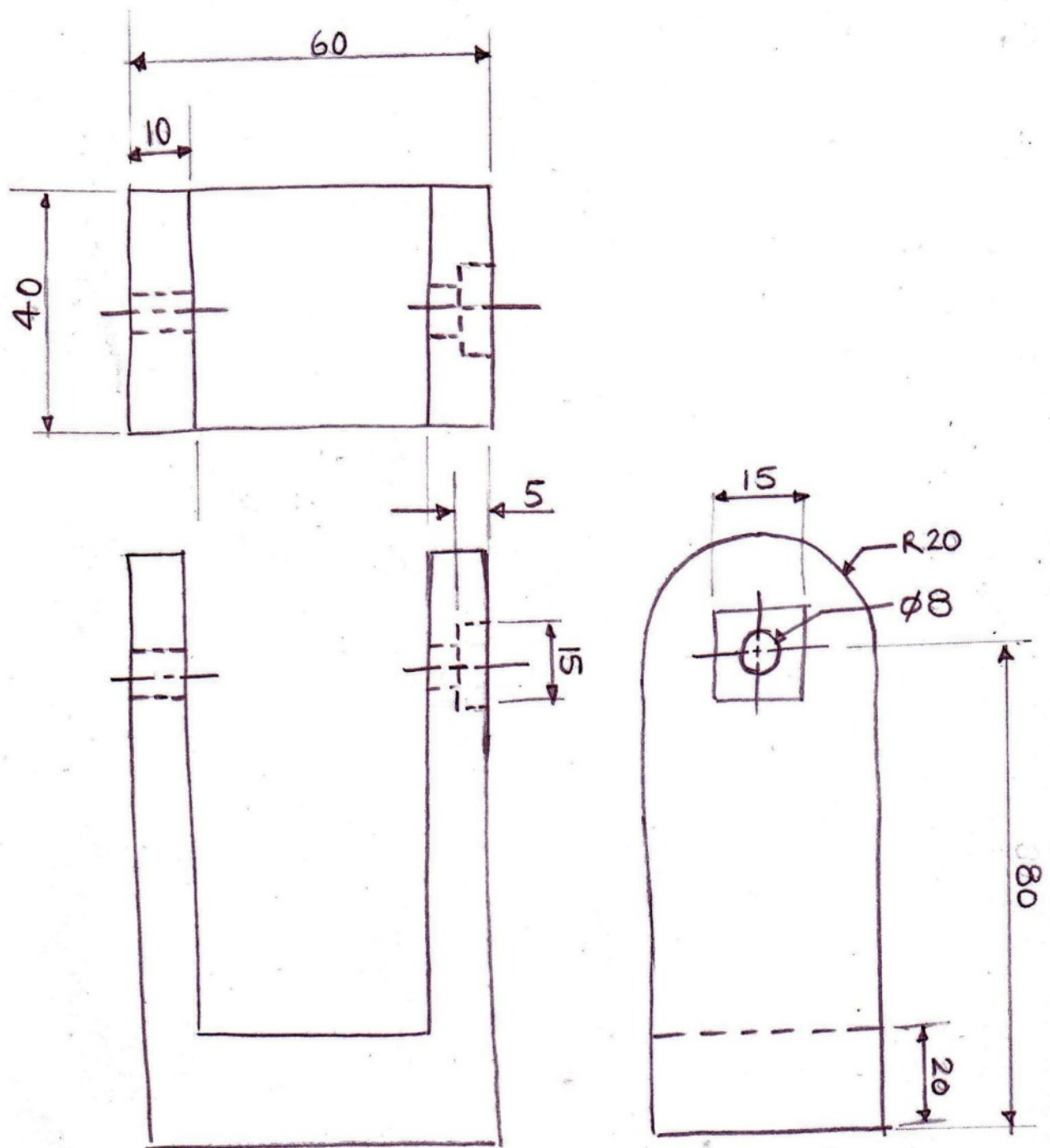
top & 20 mm from side.

Finish sketch.

Extrude subtraction & set to cut all or

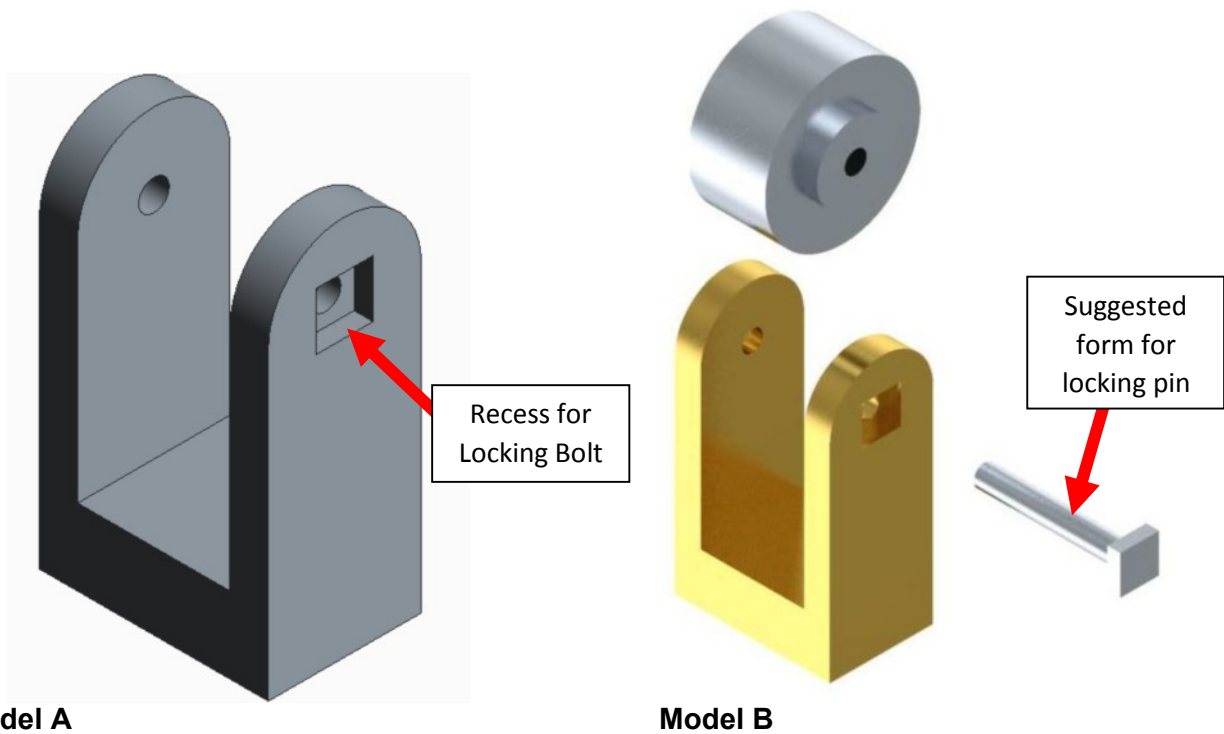
Set cut depth to 60 mm.

2. (continued) - Preliminary sketch of bracket:



2. (continued)

In **Model A** below, a recess has been added to one side of the bracket to allow a locking pin to hold the pulley in place.



An exploded view of the **completed** pulley assembly is shown in **Model B** above. A pin is needed to secure the pulley to the bracket. The pin **must not** fall through the bracket.

(c) Describe **with reference to dimensions** and **CAD modelling terms**, how to produce a 3D CAD model of a pin that will secure the belt to the bracket.

You must make reference to the **dimensions** on the **preliminary sketch**. A suggested form for the pin is shown above in **Model B**.

You may use sketches to support your answer.
(4 marks)

Set up sketching plane, sketch square.

Dimension square 15 x 15. Finish sketch.

Extrude addition to size 5 mm.

Look at square surface, sketch onto
surface, sketch circle, dimension circle

8 mm diameter, dimension centre point

7.5 mm from side & top of square.

Finish sketch, extrude addition to 55 mm.

2. (continued)

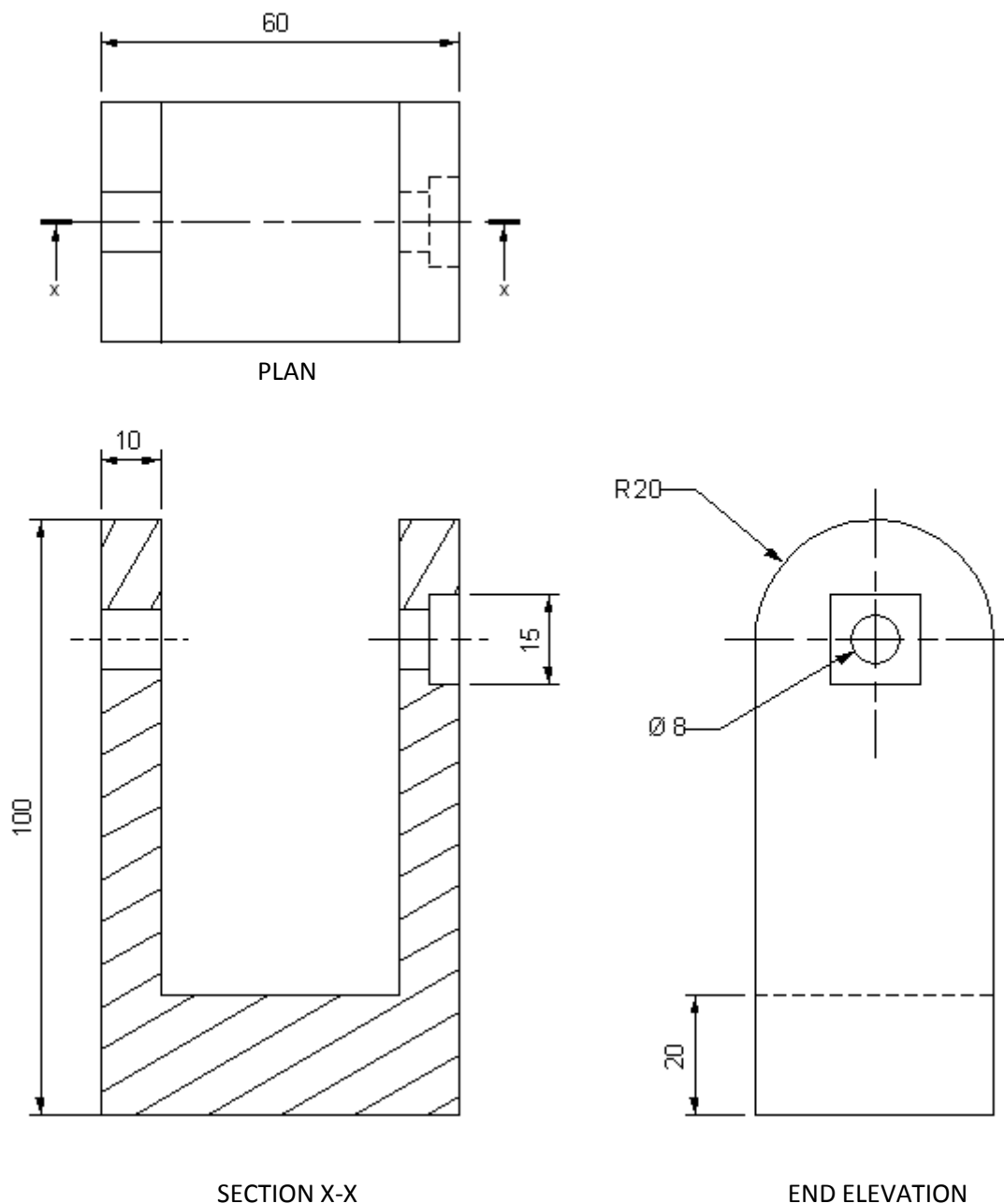
In **Model A** below, a recess has been added to one side of the bracket to allow a locking pin to hold the pulley in place.

An orthographic production drawing is produced from the 3D CAD model as shown below.

There are errors in the drawing.

- (d) State **three** errors in the production drawing. **(3 marks)**
You may annotate the drawing to support your answer.

- (i) Cross hatching
- (ii) Incorrect centre lines
- (ii) Leader lines touching object

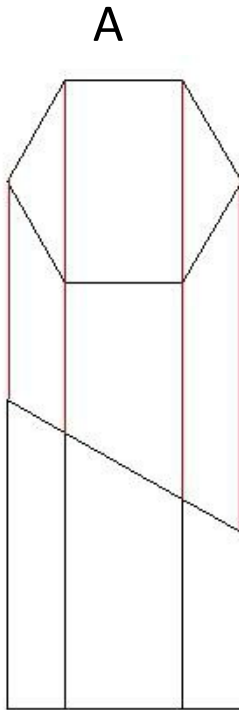


Orthographic Production Drawing of a Bracket

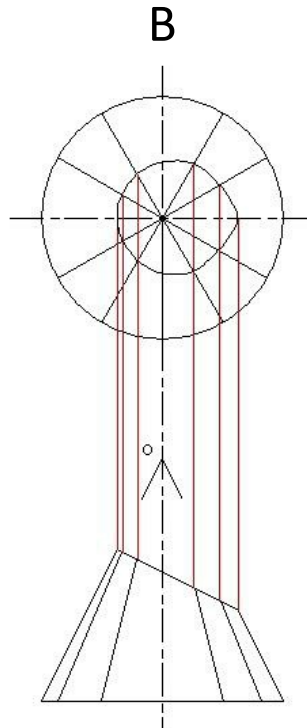
3. Six cut geometric forms are shown as orthographic views. Options for true shapes are given opposite and contain **only six** correct true shapes which match the cut geometric forms.

Place the number of the matching true shape in the box under each cut geometric form in the orthographic views. **(6 marks)**

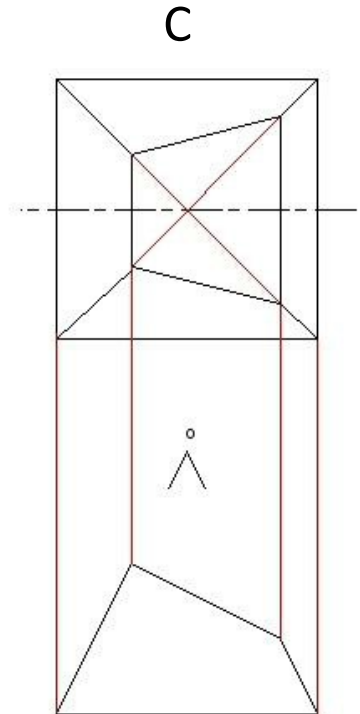
Geometric Forms shown as Orthographic Views



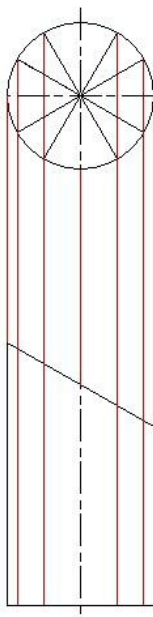
1



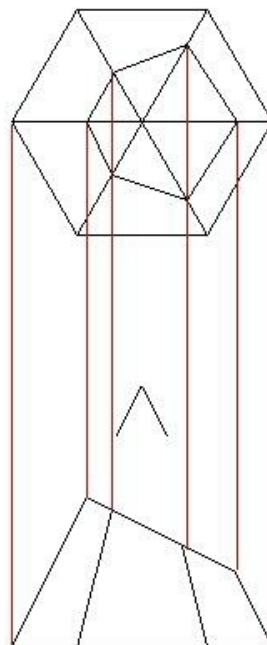
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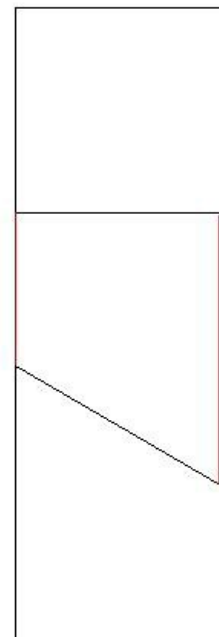
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10



13

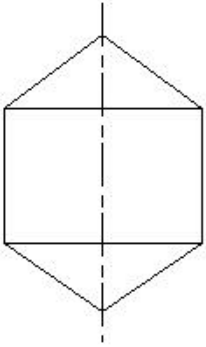


15

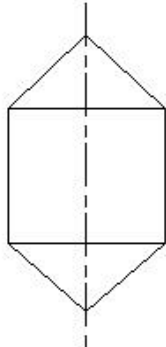
3. (continued)

True Shapes Options

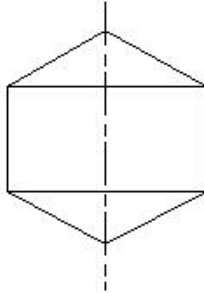
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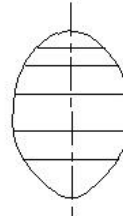
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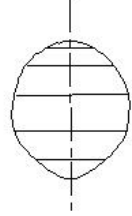
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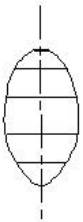
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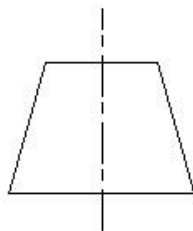
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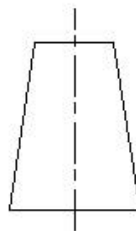
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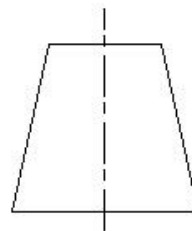
7



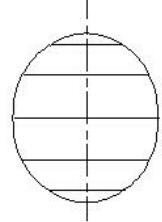
8



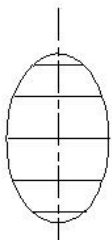
9



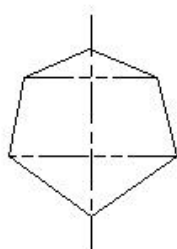
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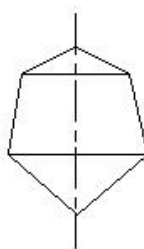
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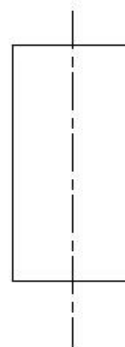
12



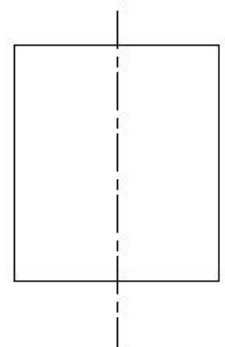
13



14



15



4. A company that makes skateboards is celebrating a successful year. They have excellent sales figures and want to use them to help promote their success.

A graphic designer has been asked to produce graphs or charts that make the sales figures more visual for use in promotional graphics. The sales figures are shown below.



Sales Figures A

Worldwide skateboard sales by percentage in 2012:

UK Sales	9%
European Sales	17%
USA Sales	33%
Asian Sales	27%
Australasian Sales	14%

Sales Figures B

Monthly skateboard sales in 2011:

Month	Sales Made
Jan	1450
Feb	900
Mar	1050
Apr	1800
May	1650
Jun	2400
Jul	3250
Aug	4100
Sep	1100
Oct	850
Nov	600
Dec	4300

(a) Based on Sales figures A:

- (i) state the best type of graph or chart to use when presenting Sales figures A information; (1 mark)

Pie chart

- (ii) state one reason for using this type of graph or chart. (1 mark)

Shows how a whole number (total) has been broken up.

Displays parts of a whole number.

(b) Based on Sales figures B:

- (i) state the best type of graph or chart to show the Sales figures B over the year; (1 mark)

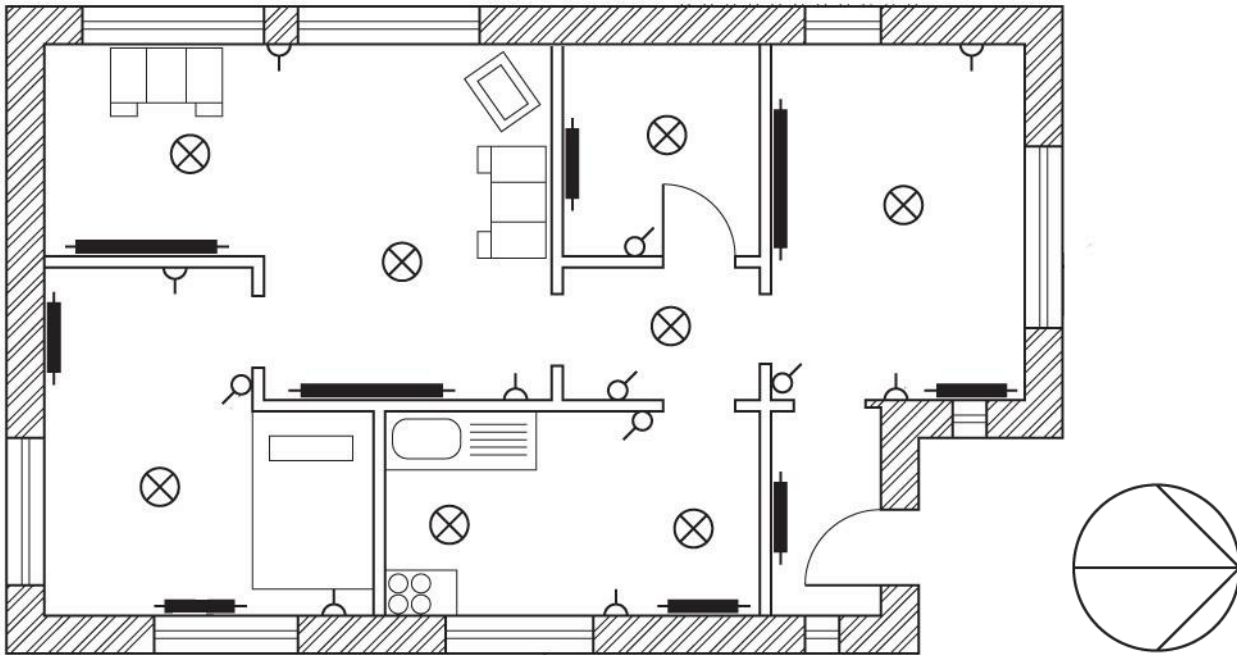
Bar graph or Line graph

- (ii) state one reason for using this type of graph or chart. (1 mark)

Bar - Shows how values vary over a period of time, used to show individual figures or comparing different items or figures, used to highlight individual figures.

Line - To show Quantities plotted over a period of time, used to show gradual change in figures over time.

5. (a) A floor plan with some electrical symbols is shown below:



(a) continued

(i) Identify, by placing an X in the box below the symbol, which symbol represents a light switch. (1 mark)



(ii) How many windows face east? (1 mark)

4

(b) All of the symbols shown above are stored in a CAD library.

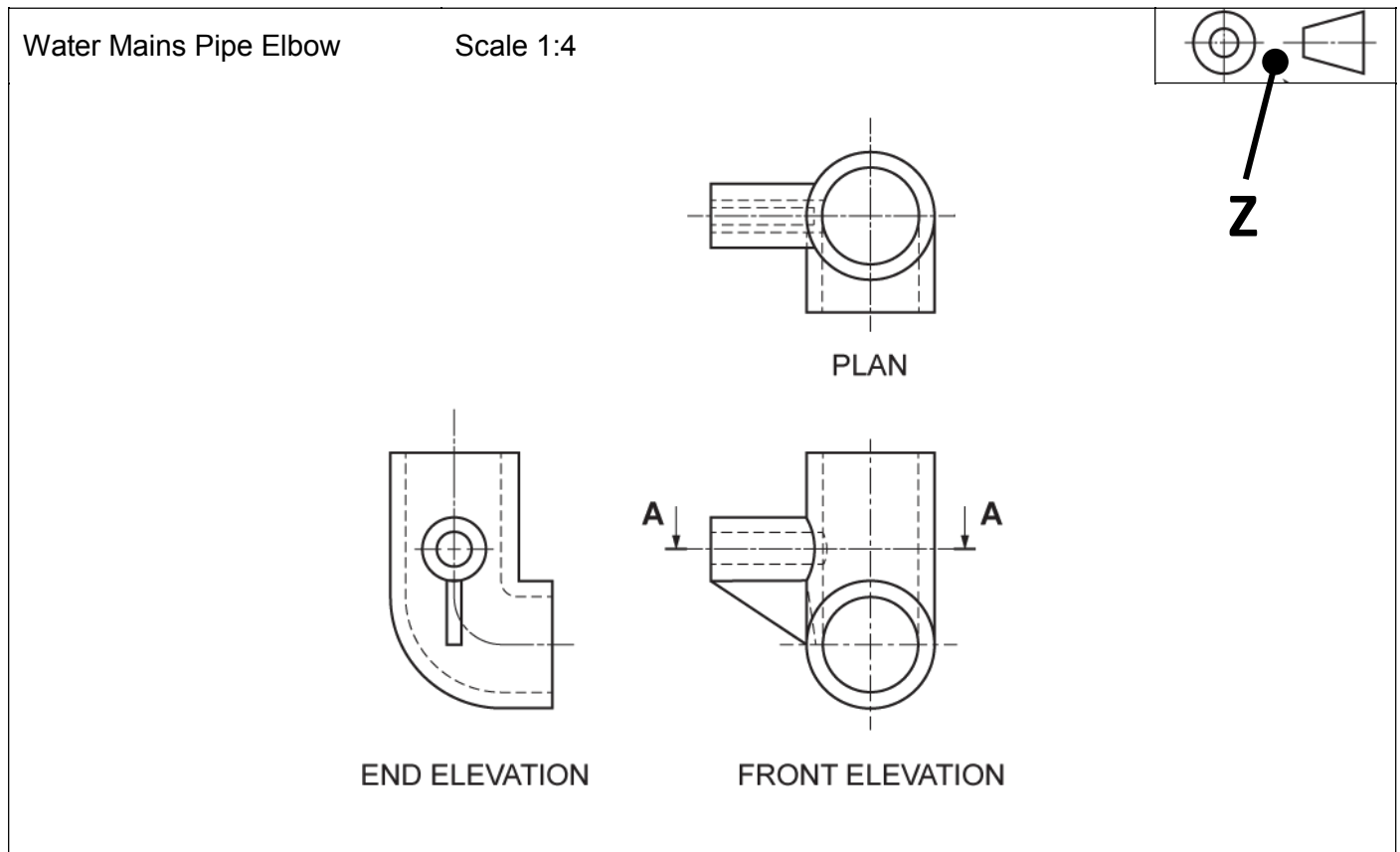
(i) State **one** advantage of using a CAD library. (1 mark)

Saves time, repeating elements or symbols makes it easier, ease of modification & standardisation.

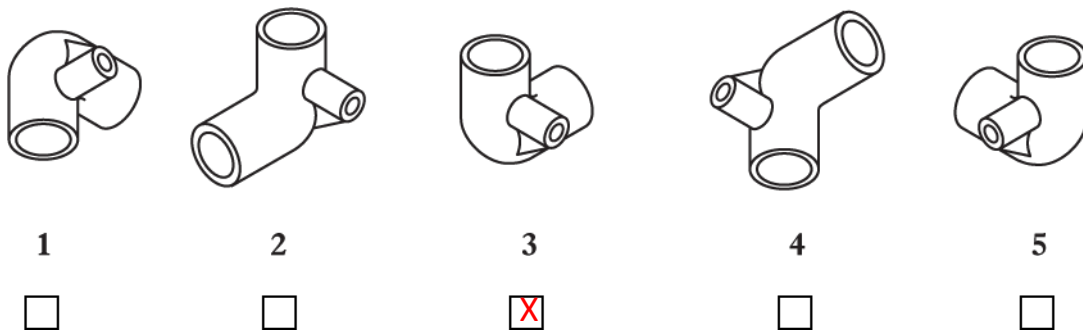
(ii) State **one** advantage of using symbols in graphic communication. (1 mark)

Breaks down language barriers, easier & quicker to convey information,
Takes up less room.

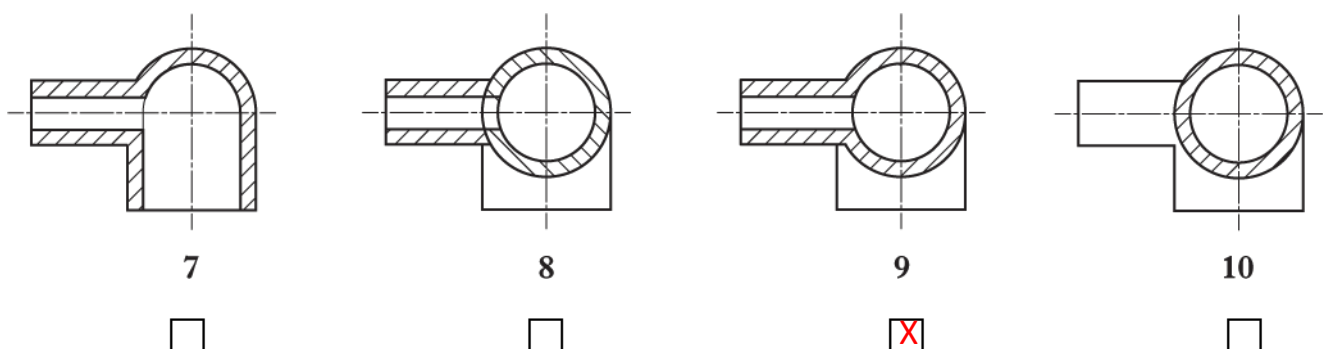
6. Orthographic CAD drawings for a mains water pipe elbow are shown below.



(a) Identify, by placing an X in the box below, which pictorial view matches the pipe elbow in the orthographic production drawings above: **(1 mark)**



(b) Identify, by placing an X in the box below, which sectional view matches the pipe elbow in the orthographic production drawings above: **(1 mark)**



6. (continued)

Dimensions are **not** normally added to orthographic **assembly** drawings.

(c) State the type of orthographic production drawings that will normally include dimensions. **(1 mark)**

Component orthographic drawings

Sectional drawings are shown on the previous page, as part of Q6 (b)

(d) State **one** benefit of using a sectional drawing in relation to this pipe elbow. **(1 mark)**

To show internal structure, to see inside, to show wall thickness.

(e) Explain what scale 1:4 means. **(1 mark)**

The size shown is a quarter of the actual size. It has been scaled down - to find the actual size multiply by 4.

For every 1 mm on the drawing the actual size will be 4 times bigger.

(f) State the name of the symbol shown at **Z**. **(1 mark)**

3rd angle projection.

(g) Describe the purpose of this symbol. **(1 mark)**

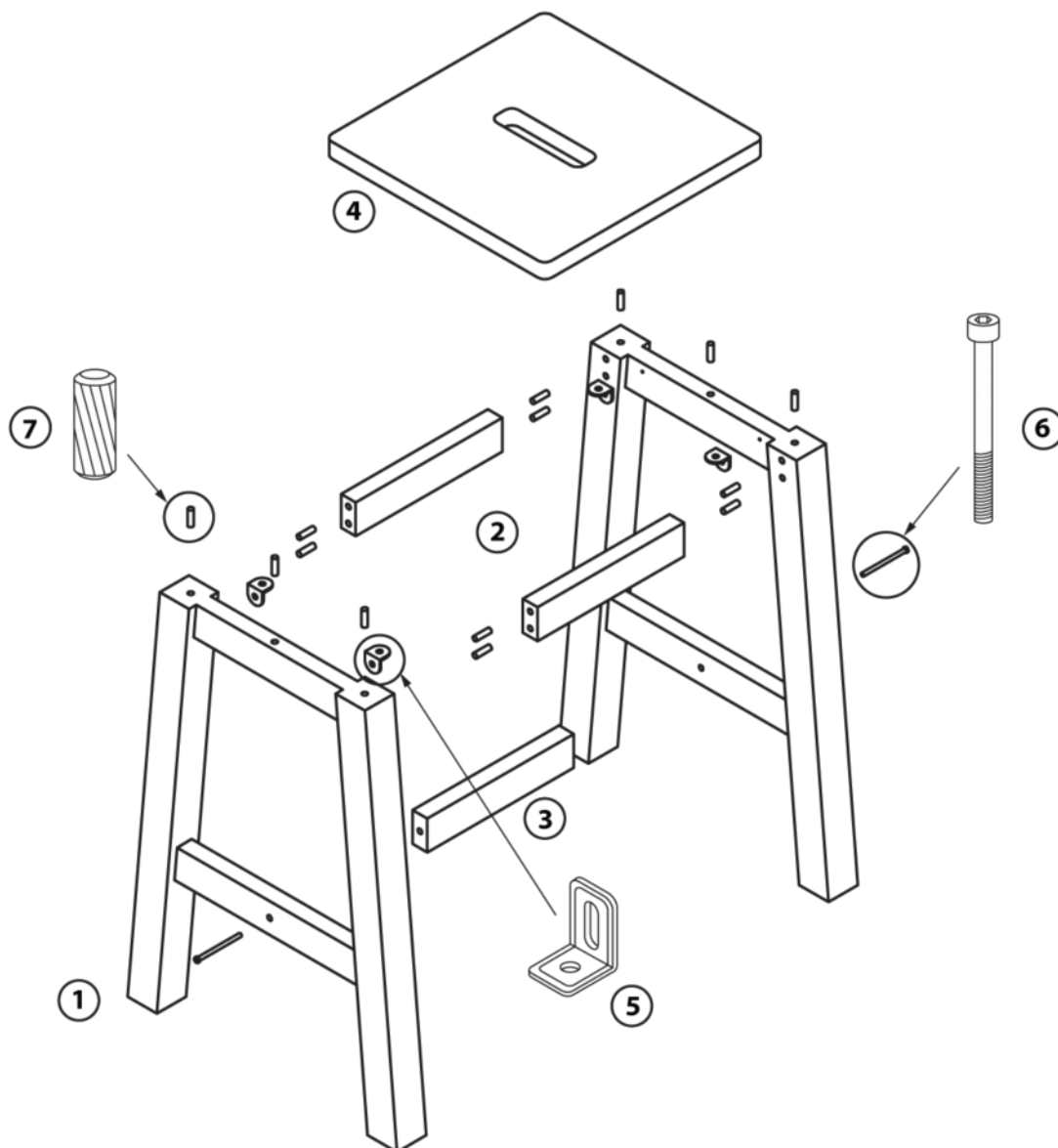
To explain the layout of the drawing.

To show / identify the order & view to be shown or drawn.

(h) State where on orthographic drawings, the information "All sizes in mm" would be found. **(1 mark)**

Title box or Name box

7. An exploded pictorial view and a parts list for a small flat pack stool are shown below:



ITEM NO.	PART NUMBER	NAME / DIMENSIONING	MATERIAL	NO. REQUIRED
1	111631	A-Frame 500 x 300 x 40mm	Pine	2
2	103404	Top Bar 200 x 40 x 20mm	Pine	2
3	103405	Centre Bar 220 x 40 20mm	Pine	1
4	102600	Stool Top 350 x 350 x 20mm	Pine	1
5	102646	Angled Bracket	Steel	4
6	101350	Bolt – M8 x 60mm	Steel	2
7	100159	Dowel Ø8 x 20mm	Ramin	14

(a) State the material of part 103404. (1mark)

Pine

(b) State the length of the Centre Bar. (1mark)

220

7. (continued)

(c) State how many Angled Brackets are required for the assembly. **(1mark)**

4

(d) State the diameter of part 101350. **(1mark)**

8 mm

(e) State the part number for the A-Frame. **(1mark)**

111631

(f) State how many 8mm dowels are required. **(1mark)**

14

8. A poster promoting “smartWATCH”, a new smart phone accessory for men, is shown on the facing page.

The text and the images used in the poster are laid out in their original form at the top of the page.

The final poster layout, (bottom of the page), promotes the smart watch.

The original graphics and text were edited in a DTP package before being placed in the final layout.

- (a) State the name of the DTP editing feature applied to each of the original items to get them ready for use in the final layout.

Do not include “**scaling** or **resizing**” in your answer.
Ensure you do not use the same answer twice.

- (i) **Photograph of the model**—state **one** DTP edit. (1 mark)

Edit Mirror / reflection or Crop

- (ii) **Product photo of smart watch** —state **one** DTP edit. (1 mark)

Edit Drop shadow

- (iii) “**smartWATCH**” brand name—state **one** DTP edit. (1 mark)

Edit Reversing

- (iv) **Background silhouette**—state **one** DTP edit (do not repeat a previous answer). (1 mark)

Edit Transparency

- (v) **Slogan** —state **one** DTP edit. (1 mark)

Edit Text wrap, Point size, Font / typeface

- (b) State **one** way in which the final layout of the slogan improves the promotional poster. (1 mark)

It highlights & emphasises the important text, Draws focus to certain text, Creates unity between words & ‘SMART’ in brand name.

- (c) When setting up the layout the designer used the following DTP features: **Grid** and **Snap to grid**.

State **two** ways in which the use of **Grid** and **Snap to grid** benefit the graphic designer. (2 marks)

Keeps it well organised & neat, Makes it look professional, Helps to align elements,
Helps to use white space effectively.

8. (continued)

Text and images used for final layout:

Product Photo

Product Name
smartWATCH

Box

Flashbar

Photo of Watch Model

Background Silhouette

Slogan
all your notifications...all
the time...wherever you
are!

Final layout:

smartWATCH

SONY

all your notifications...
all the time...
wherever you are!

[END OF PRELIM PAPER]