

# **S4 Graphic Communication**

## **National 4/5**

### **Homework Booklet**

**Mr McMenemy**

**Name:** \_\_\_\_\_

**Class:** \_\_\_\_\_

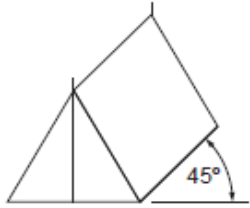
# Homework Record

Homework	Date Issued	Date Due	Completed On Time	Parental Signature	Feedback
1	Sept				
2	Oct				
3	Oct				
4	Nov				
5	Nov				
6	Dec				
7	Jan				
8	Feb				
9	Mar				
10	Apr				
11	May				

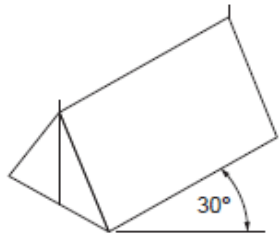
# Homework 1 - Drawing Types & BSI

1

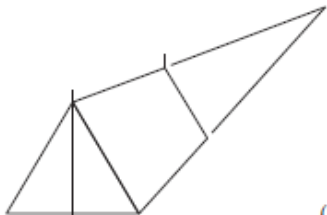
Four pictorial views of a tent are shown below. State the **drawing type** used in each of the views.



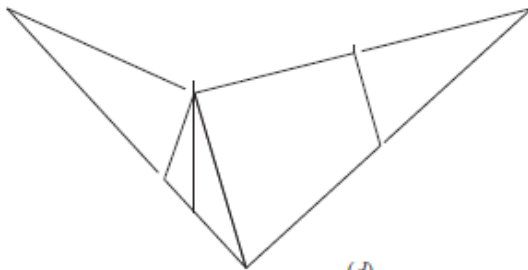
(a) ..... (1)



(b) ..... (1)



(c) ..... (1)



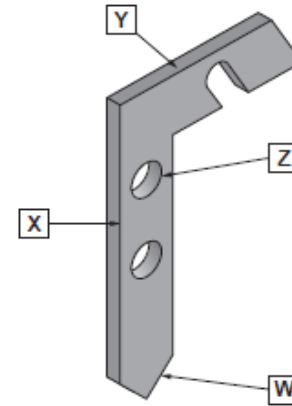
(d) ..... (1)

(4 marks) ☐

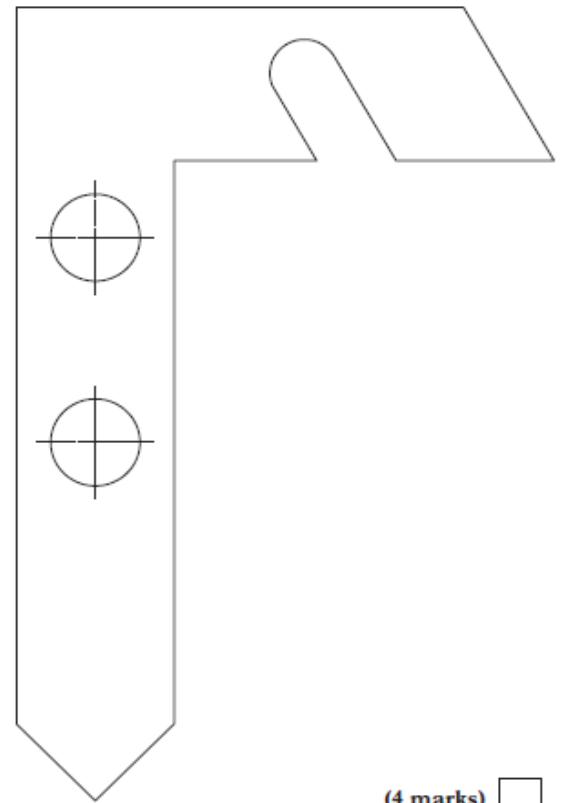
3

A pictorial view and elevation of a new tent peg design are given below.  
Add the following dimensions to the elevation, according to British Standards.

- |                      |            |     |
|----------------------|------------|-----|
| (a) Angle W          | 45 degrees | (1) |
| (b) Length of edge X | 140 mm     | (1) |
| (c) Length of edge Y | 85 mm      | (1) |
| (d) Diameter Z       | 17 mm      | (1) |



*Pictorial view not to scale*

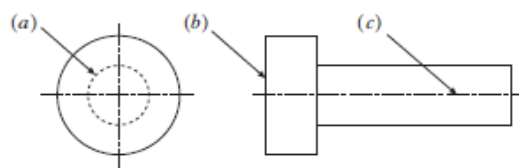


Elevation shown at scale 1 : 1

(4 marks) ☐

1

The elevation and end elevation of a round pin are shown below.



Elevation

End Elevation

Identify, according to British Standards, the three line types shown.

- (a) .....
- (b) .....
- (c) ..... (3 marks)

2

keyboard • monitor • hard drive • plotter • scanner

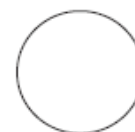
Using the list shown above, select,

- (a) a storage device .....
- (b) an input device .....
- (c) an output device ..... (3 marks)

3

(a) Add, according to BSI, the following line types to the drawings shown below.

- (i) Centre lines on the orthographic drawing, of a cylinder shown below

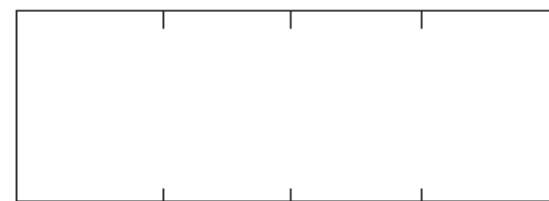


End Elevation



Elevation

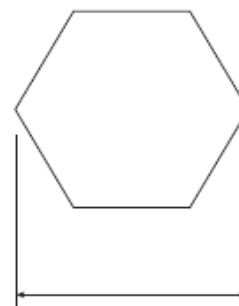
- (ii) Fold lines on the surface development, of a square prism shown below



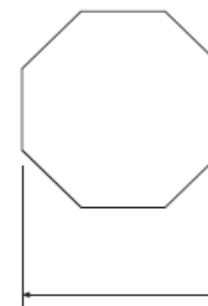
Surface Development

- (b) State the **abbreviations** used when dimensioning the geometric shapes shown below.

(i) .....



(ii) .....

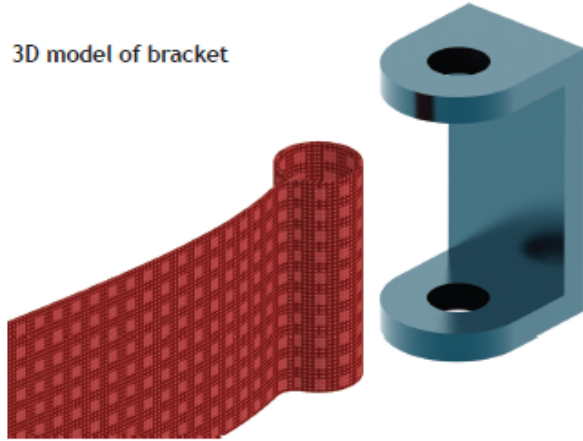


(4 marks)

# Homework 1 Cont'd - Modelling & BSI

A pin is needed to secure the belt to the bracket. The pin must not fall through the bracket. See the figure below.

3D model of bracket



Suggested form for pin

- (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.

You may use sketches to support your answer.

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4

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

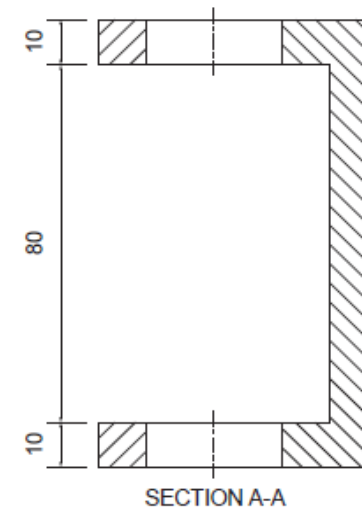
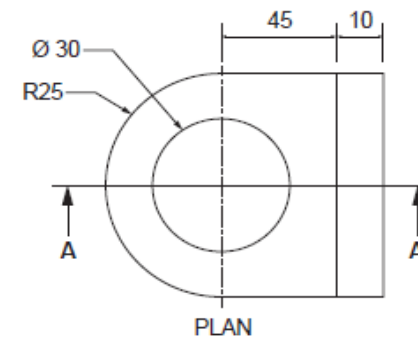
There are errors in the drawing.

- (d) State three errors in the production drawing.

3

You may annotate the drawing to support your answer.

- (i) \_\_\_\_\_  
 (ii) \_\_\_\_\_  
 (iii) \_\_\_\_\_

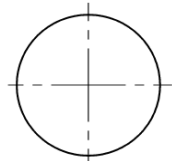


Orthographic production drawing of bracket

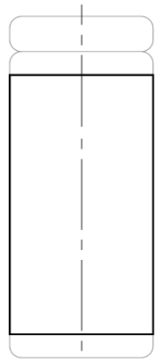
Total marks 11

# Homework 2 - Surface Developments

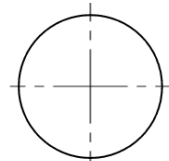
Sketch in the spaces provided the Surface Development of each of the shapes given.



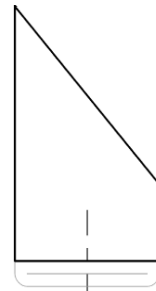
PLAN



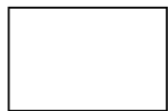
FRONT ELEVATION



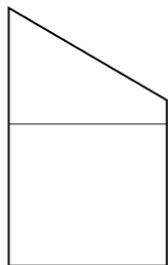
PLAN



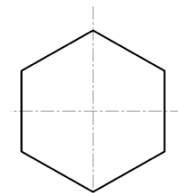
FRONT ELEVATION



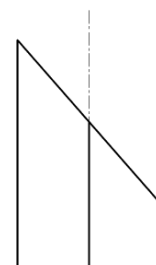
PLAN



FRONT ELEVATION



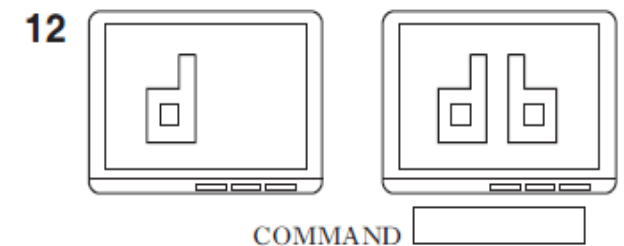
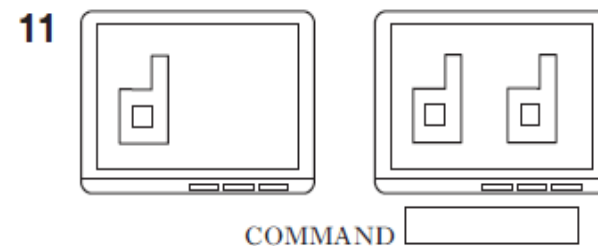
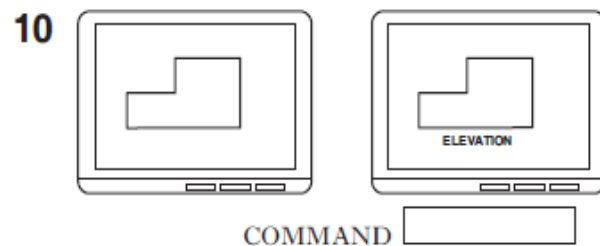
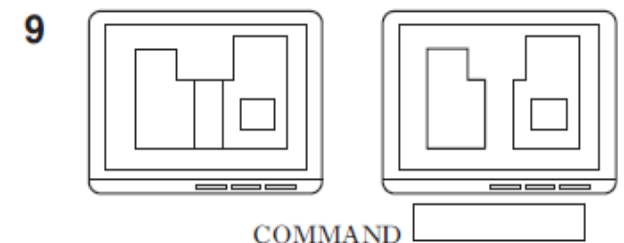
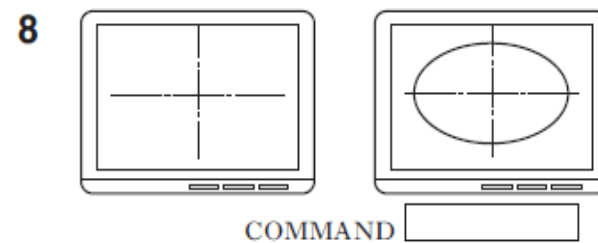
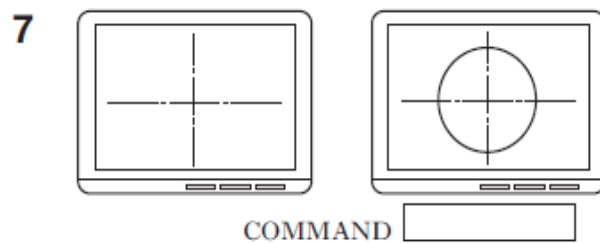
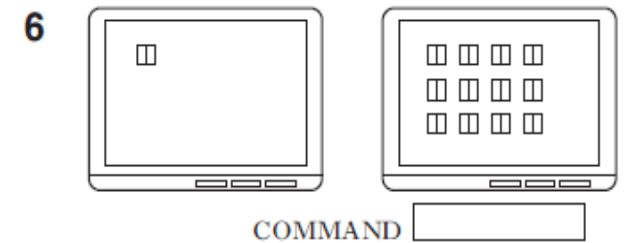
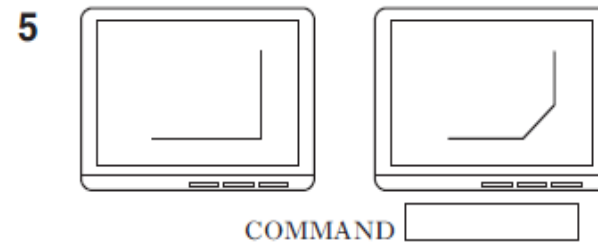
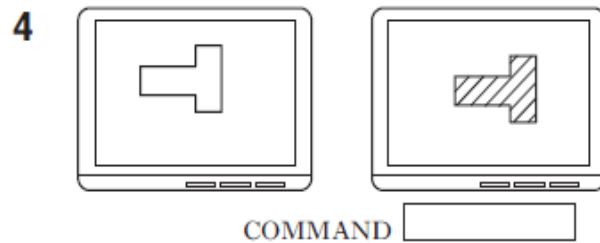
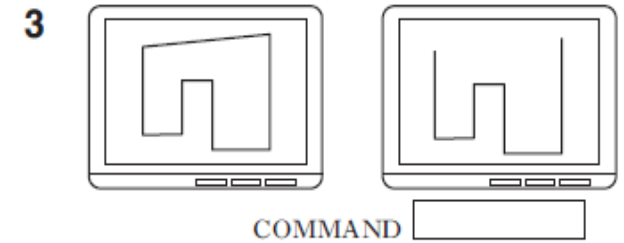
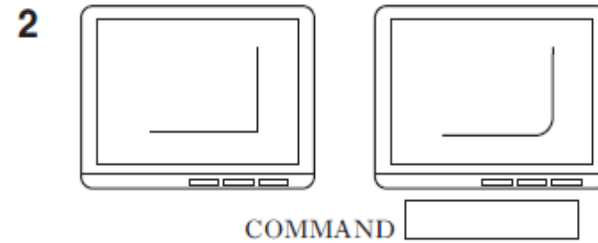
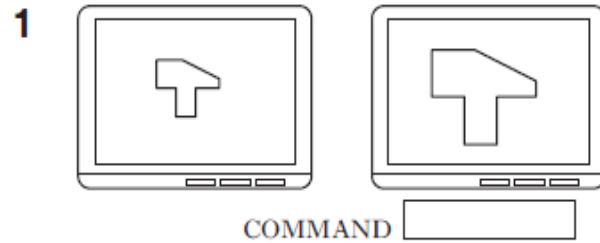
PLAN



FRONT ELEVATION



## Homework 2 - CAD Commands



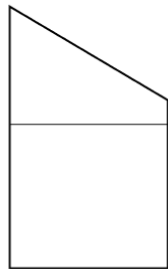
Total (KI 12)

# Homework 3 - True Shapes

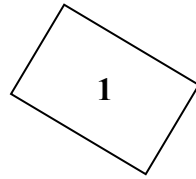
Which is the correct True Shape from the 4 options provided?



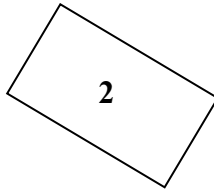
PLAN



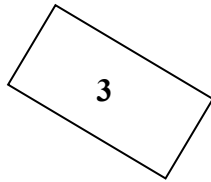
FRONT ELEVATION



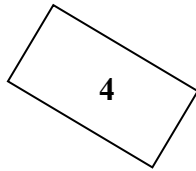
1



2

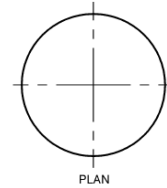


3

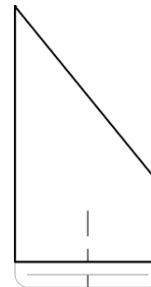


4

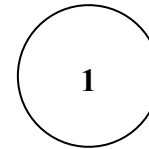
Answer:



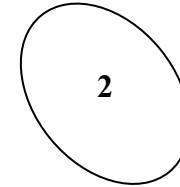
PLAN



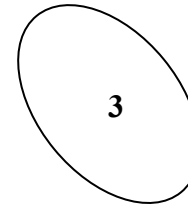
FRONT ELEVATION



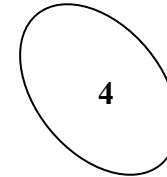
1



2

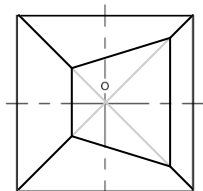


3

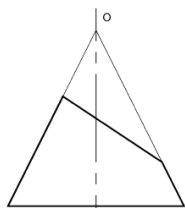


4

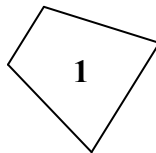
Answer:



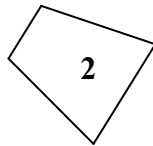
PLAN



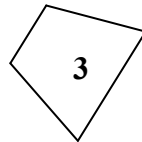
FRONT ELEVATION



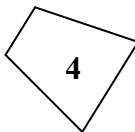
1



2

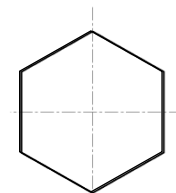


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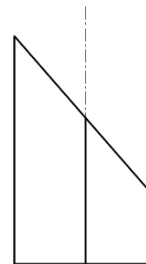


4

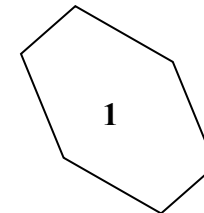
Answer:



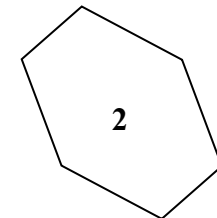
PLAN



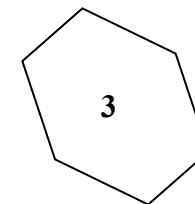
FRONT ELEVATION



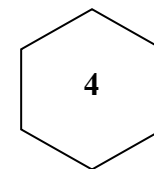
1



2



3



4

Answer:

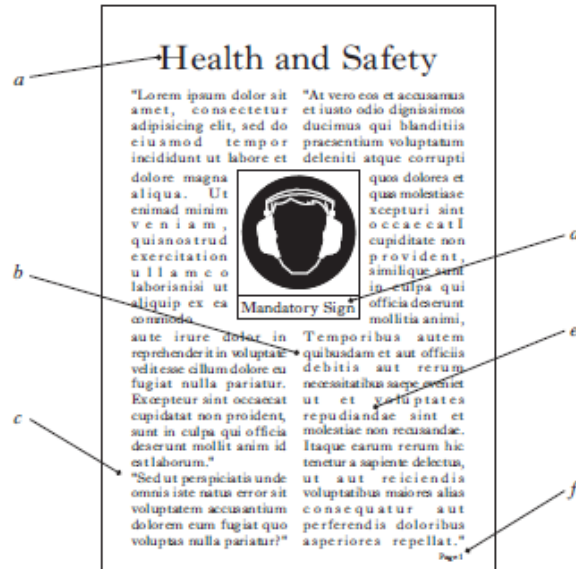




# Desktop Publishing (DTP)

1

A desktop published document is shown below. State the DTP features indicated.



- (a) \_\_\_\_\_
- (b) \_\_\_\_\_
- (c) \_\_\_\_\_
- (d) \_\_\_\_\_
- (e) \_\_\_\_\_
- (f) \_\_\_\_\_

4

An enterprise class produced a promotional flyer for their Christmas Fair, using a CAG package.



- (a) State which two commands would be used to duplicate the decoration graphic from one part of the document to another.
- (i) ..... and (ii) .....
- (b) State the type of fill used for the background.
- .....
- (c) State the command which allows all of the graphic items to be moved as one object.
- .....
- (d) Name the **type** of CAG package that would be used to produce a newsletter containing text and graphics.
- .....
- (e) State **one** reason for saving your work at regular intervals.
- .....

(6 marks) ☐

(6 marks)

# Homework 4 - Colour Theory

5

A coffee shop is being refurbished, **green** has been used for the walls.

(a) State what effect this would have on the eating area.

.....  
..... (1)

(b) State a colour that **harmonises** with the green on the walls.

..... (1)

(c) State a **contrasting** colour to the green walls which could be used for the serving area.

..... (1)

(d) The door is orange. What **two** primary colours are used to create this colour?

.....  
..... (1)

(e) Explain what the term "advancing colour" means.

.....  
..... (1)

(5 marks) ☐

5



5

A holiday camp has designed a new staff uniform.  
An illustration of this is shown opposite.

- (a) Red was chosen for the jacket colour. State **one** reason for this.

.....  
..... (1)

- (b) State a **tertiary** colour which contrasts with the red jacket, which could be used for the campsite logo.

..... (1)

- (c) State a **harmonising** colour to the red jacket, that could be used for the shirt.

..... (1)

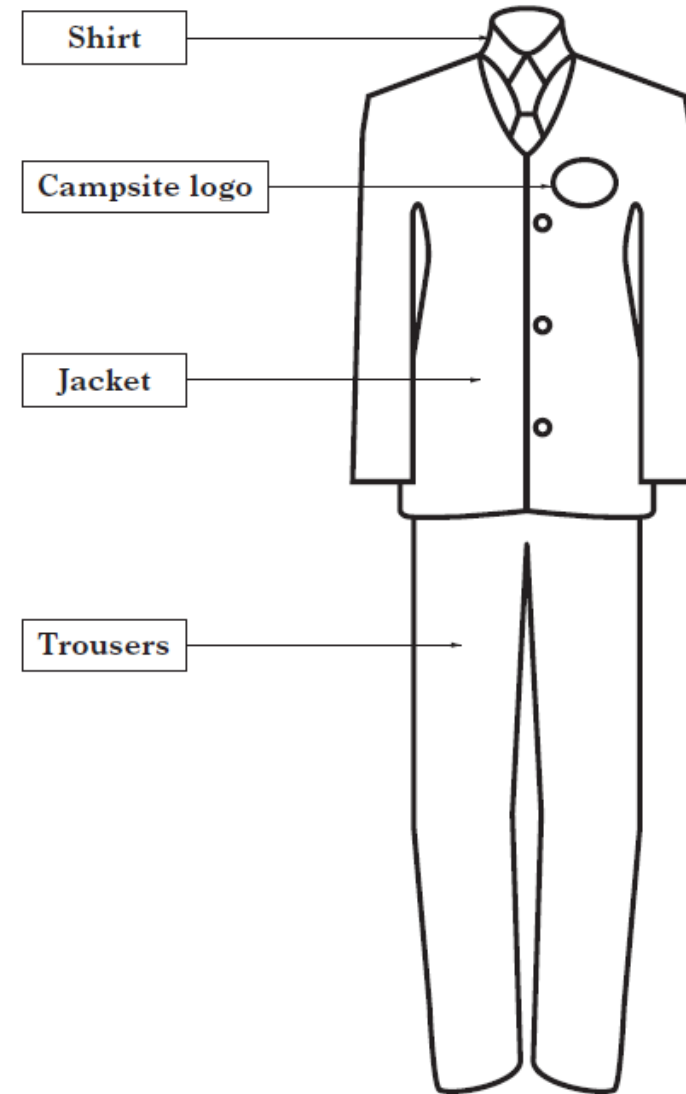
- (d) A **shade** of red was chosen for the trouser colour.  
State what is added to red to create a shade of red.

..... (1)

(4 marks)

☐

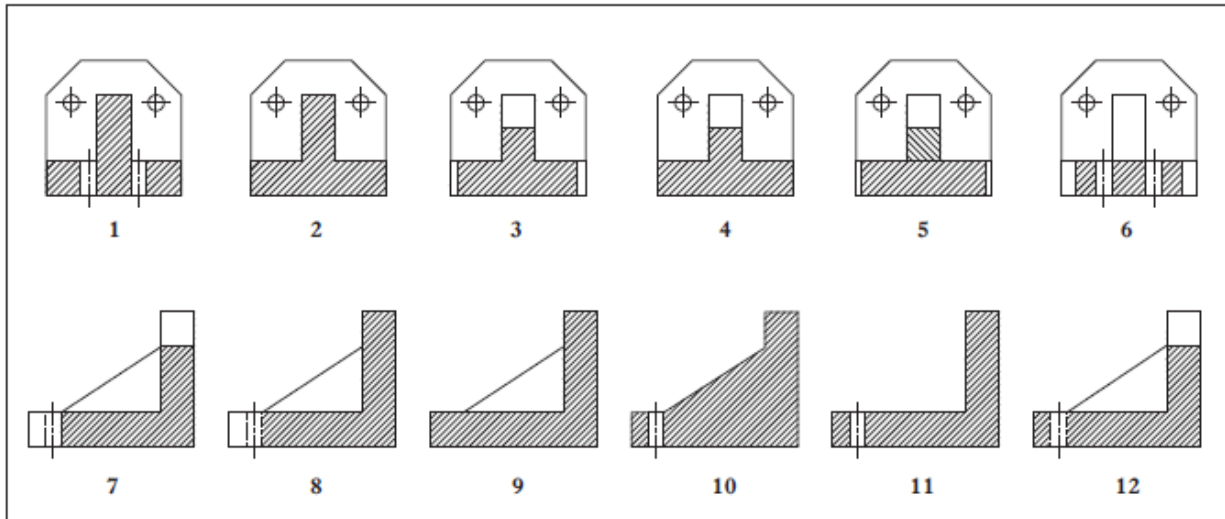
5



# Homework 4 Cont'd - Sectionals

The elevation, end elevation and plan of a bracket are given in **Drawing Y**.

(a) Twelve sectional views 1 to 12 are given below (**Not to Scale**).



State which of these are the correct sections for **AA**, **BB**, **CC** and **DD**.

Section AA ..... Section BB .....

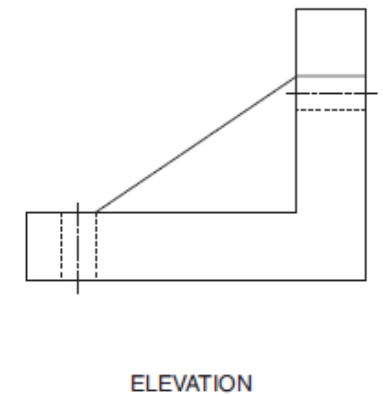
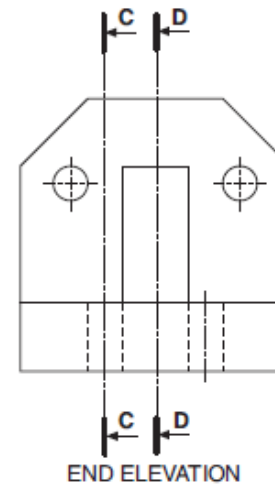
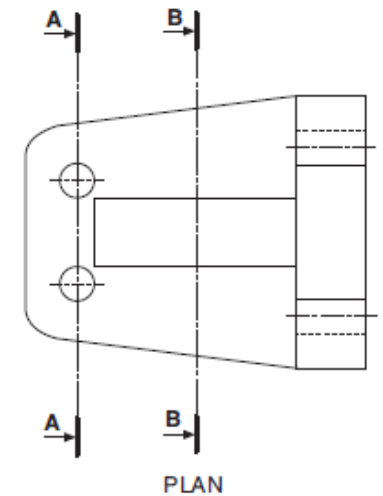
Section CC ..... Section DD ..... KI 4

(b) State **two** factors that affect the choice of scale when working on a production drawing.

Answer 1 .....

Answer 2 ..... KI 2

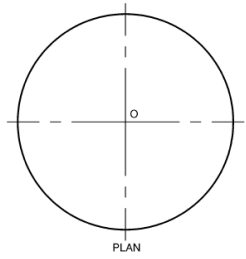
Total (KI 6)



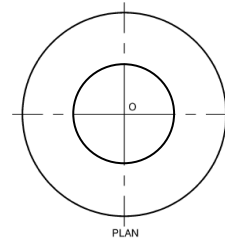
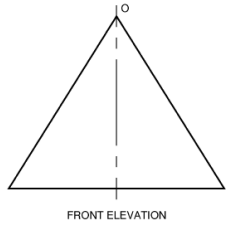
**DRAWING Y**

# Homework 5 - Surface Developments

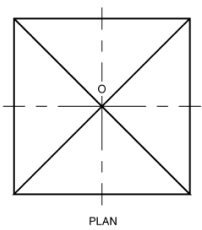
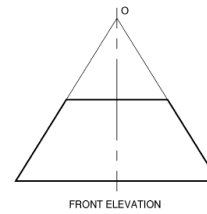
Sketch in the spaces provided the Surface Development of each of the shapes given.



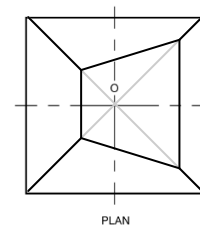
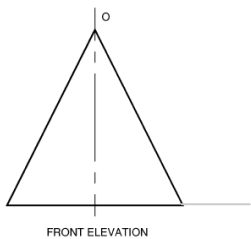
o  
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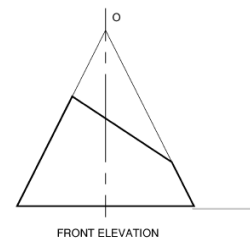
o  
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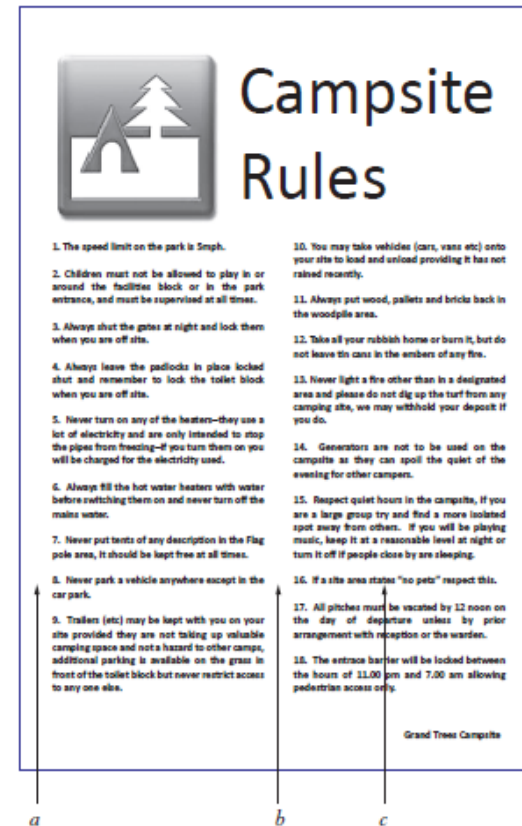


# Desktop Publishing (DTP)

A page from a car magazine is shown below.



A desktop published document is shown below. State the DTP features indicated.



State the **two** Desktop Publishing features which are shown at (a) and (b).

- (a) ..... (1)
- (b) ..... (1)
- (c) Annotate and label the graphic to show **two** additional Desktop Publishing features. (2)

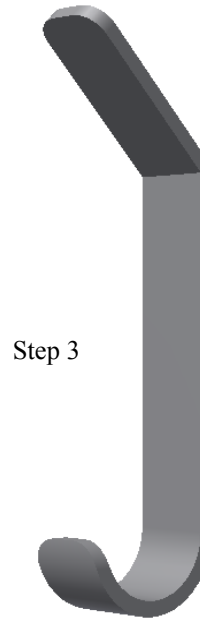
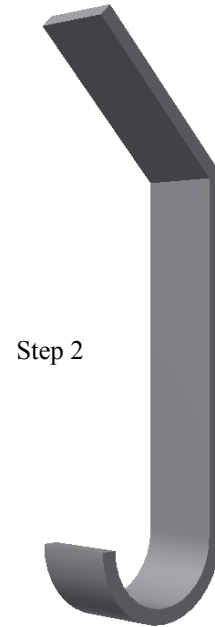
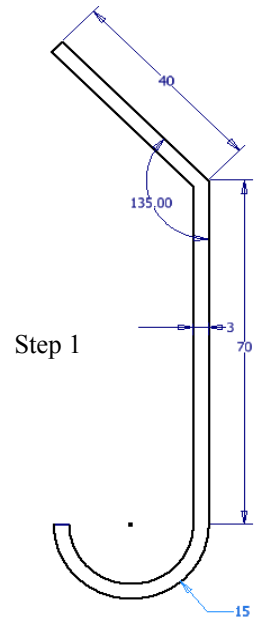
(4 marks)

- (a) ..... (1)
- (b) ..... (1)
- (c) ..... (1)
- (d) State the page orientation of the document shown above. (1)

(4 marks)

# Homework 6 - 3D Modelling Techniques

Describe, with reference to correct 3D CAD modelling terms, how you would use 3D modelling software to complete the model from Step 1 to Step 4.



Commands: \_\_\_\_\_

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Command: \_\_\_\_\_

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Command: \_\_\_\_\_

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Command: \_\_\_\_\_

Explain: \_\_\_\_\_

\_\_\_\_\_

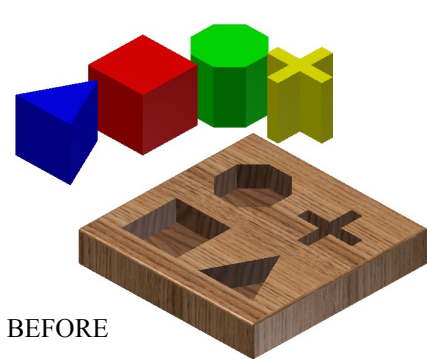
\_\_\_\_\_

\_\_\_\_\_

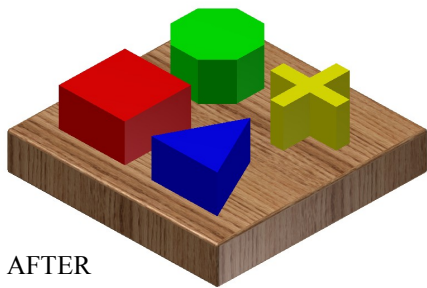
\_\_\_\_\_



Describe, with reference to correct 3D CAD modelling terms, how you would use 3D modelling software to adapt the model in each image given below.



BEFORE



AFTER

Commands: \_\_\_\_\_

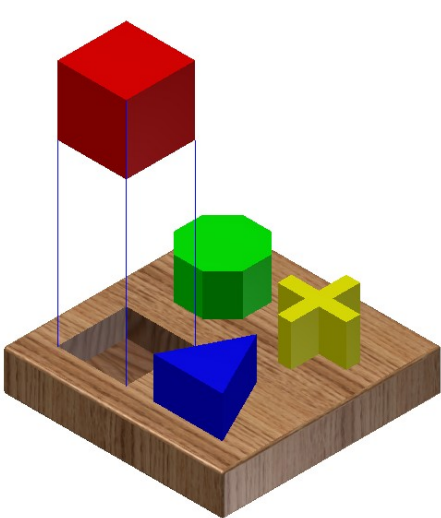
Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Command: \_\_\_\_\_

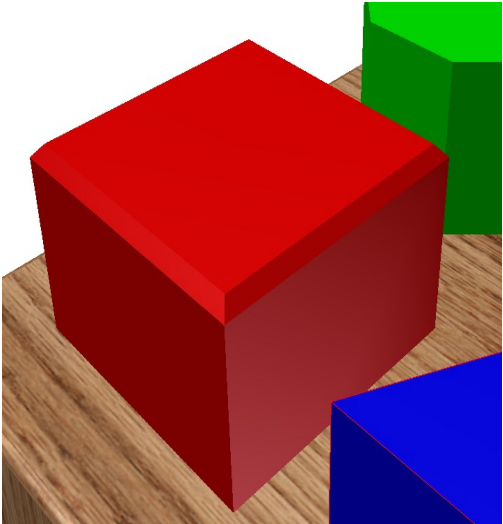
Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Command: \_\_\_\_\_

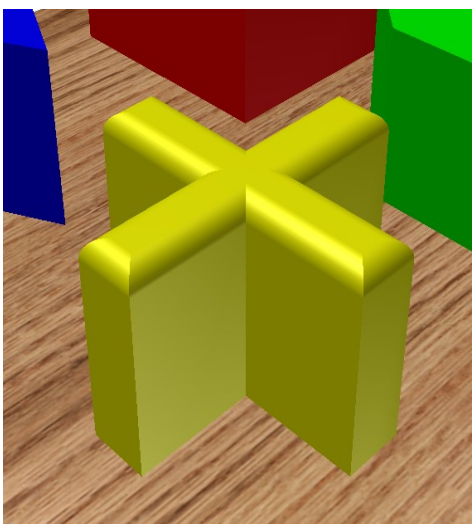
Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Command: \_\_\_\_\_

Explain: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



When choosing a colour scheme for a new travel shop, the choice of colour is very important.

(a) Complete the following table by adding the missing information.

AREA	COLOUR	REASON FOR CHOICE
Interior Walls	Yellow	
Floor Covering	Blue	
Ceiling		<i>Represents cleanliness</i>
Brochure Display Area	Blue-Violet	
Shop Front	Red	
First Aid Cabinet		<i>Associated with safety</i>

(b) State **one** advancing and **one** receding colour from the colours used in this colour scheme.

Advancing ..... Receding.....

(c) State a colour that could be used for the seating in the shop, which is in harmony with the floor.

Answer .....

(d) Describe how you would create a tertiary colour.

Description .....

.....

(e) State the effect created by using so many contrasting colours in the same colour scheme.

Effect .....

.....

KI 6

KI 2

KI 1

KI 1

KI 1

Total (KI 11)



# Homework 7 - Computers

1

A high street estate agency is moving from a manual based office to a computer based one.

(a) State the **type** of software package required to produce floor plans.

\_\_\_\_\_

(b) State the **type** of software package required to fully integrate text and pictures in a document.

\_\_\_\_\_

(c) State the **type** of software package required to edit photographs before inserting them in a document.

\_\_\_\_\_

(d) State **three** advantages to the estate agent of changing to a computer based office.

(i) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(ii) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(iii) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(6 marks)

3

Shown below are images of devices commonly used with Computer-Aided Drawing.

Indicate, using a tick, whether the product is an input device, output device or a storage device.

- ☐ Input  
☐ Output  
☐ Storage



- ☐ Input  
☐ Output  
☐ Storage



(1)

(1)

- ☐ Input  
☐ Output  
☐ Storage



- ☐ Input  
☐ Output  
☐ Storage



(1)

(1)

- ☐ Input  
☐ Output  
☐ Storage



- ☐ Input  
☐ Output  
☐ Storage



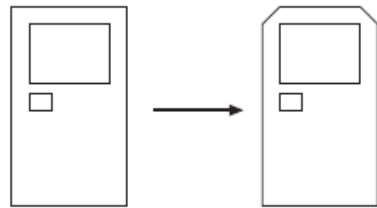
(1)

(1)

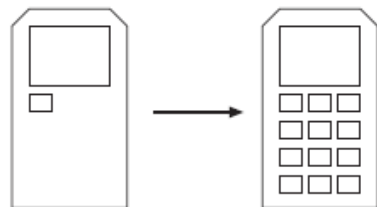
(6 marks) ☐

5

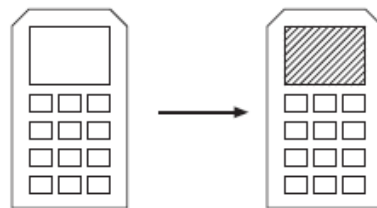
Stages in the production of a CAD drawing of a mobile phone are shown below.  
Identify the **single** command used to produce each stage.



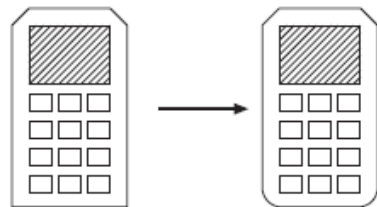
(a) .....



(b) .....



(c) .....



(d) .....

(4 marks)

2

Explain, with the aid of sketches, the following CAD commands.

(a) Zoom

(b) Pan

(c) Chamfer

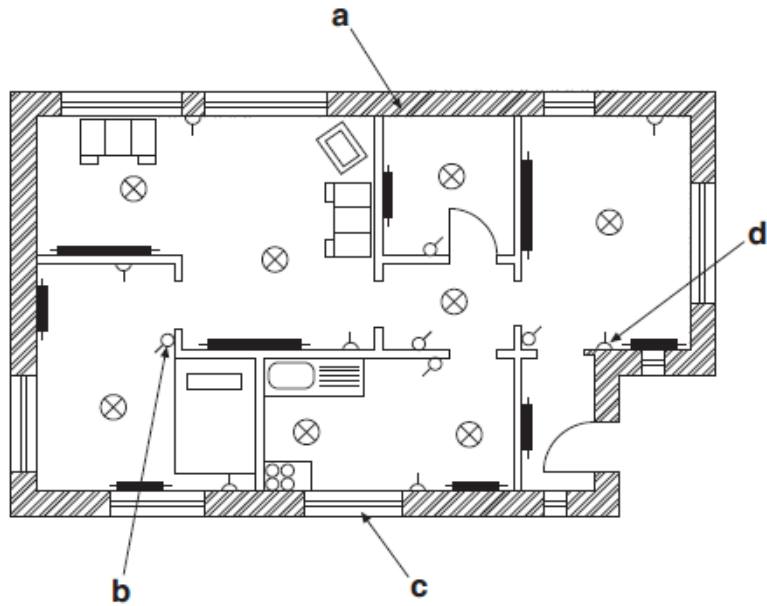
(d) Trim

(4 marks)

# Homework 8 - CAD & Symbols

1

A floorplan of a new house is shown below.  
State the British Standard symbols shown at **a**, **b**, **c** and **d**.



- a** ..... (1)
- b** ..... (1)
- c** ..... (1)
- d** ..... (1)

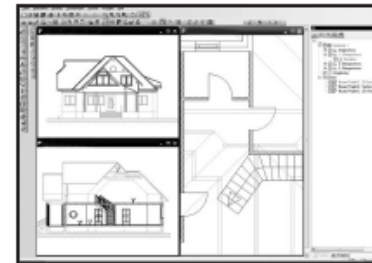
(4 marks) ☐

2

Describe **three** advantages of using a CAD package over manual drawing methods in the production of architectural drawings.

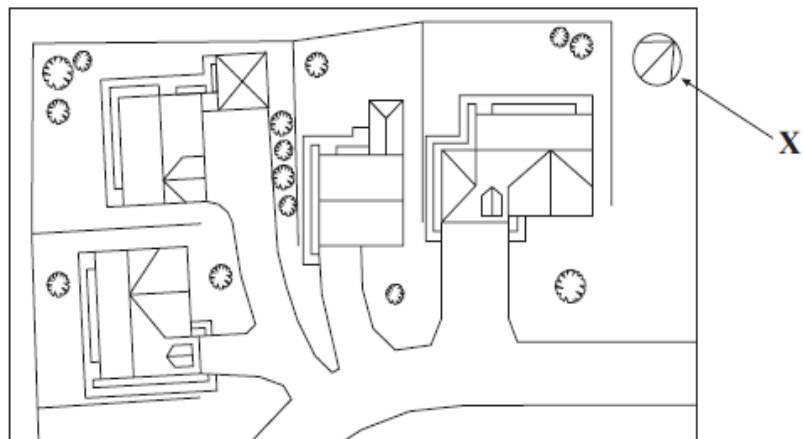
- 1 ..... (1)
- 2 ..... (1)
- 3 ..... (1)

(3 marks) ☐



1

A new housing development is planned. One of the architect's plans is shown below.



(a) State the name given to this type of plan.

.....

(b) State **one** use for this type of plan.

.....

(c) State the appropriate scale for this type of plan.

.....

(d) State the purpose of symbol **X**.

.....


(4 marks)

3

Identify the architectural symbols shown below.

(a)  .....

(b)  .....

(c)  .....

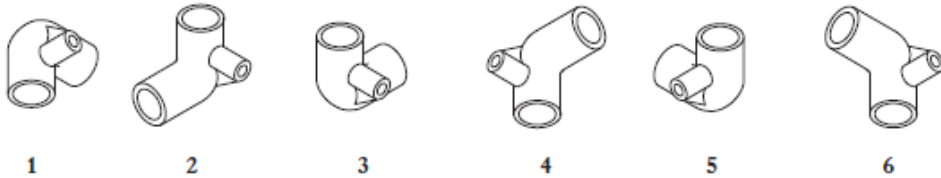
(d)  .....

(4 marks)

2)

The elevation, end elevation and plan of a pipe elbow are shown in **Drawing X**.

Six pictorial views are shown below.



- (a) State which **two** of the pictorial views 1 to 6 above represent the pipe elbow shown in **Drawing X**.

**Answer 1** ..... **Answer 2** ..... KI 2

- (b) State the name given to these types of pictorial view.

**Answer** ..... KI 1

- (c) State the name given to the type of drawing shown in **Drawing X**.

**Drawing** ..... KI 1

- (d) State the purpose of the symbol shown at **Symbol Y**.

**Purpose** ..... KI 1

Eight sectional views 7 to 14 are shown opposite.

- (e) State which **two** are correct sections of the pipe elbow.

**Section AA** ..... **Section BB** ..... KI 2

- (f) State **two** factors that affect the scale of a drawing.

**Answer 1** .....

.....

**Answer 2** .....

..... KI 2

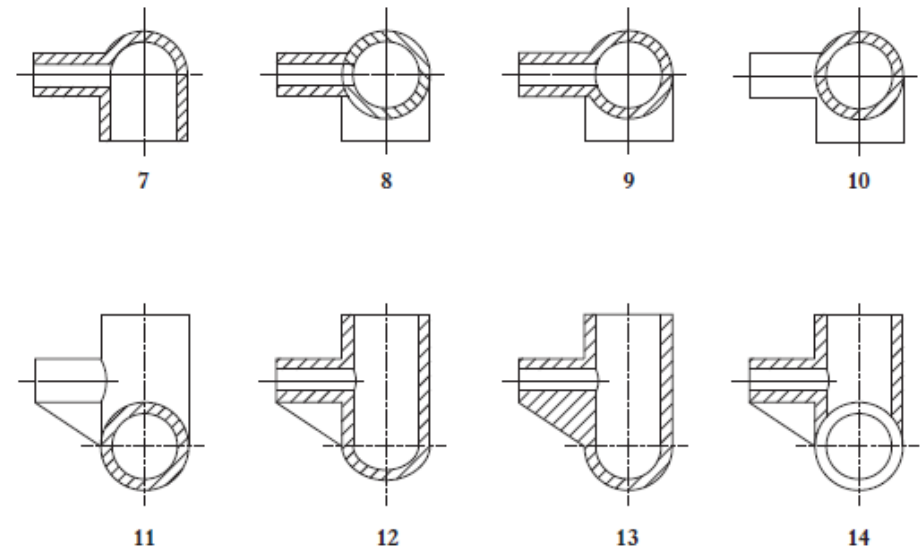
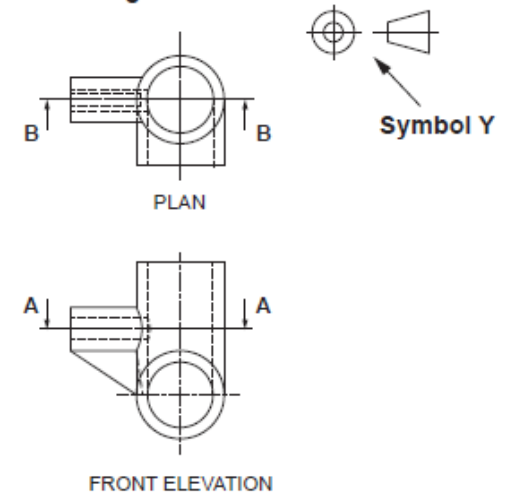
- (g) State what is meant by scale 1:1.

**Answer** ..... KI 1

Total (KI 10)

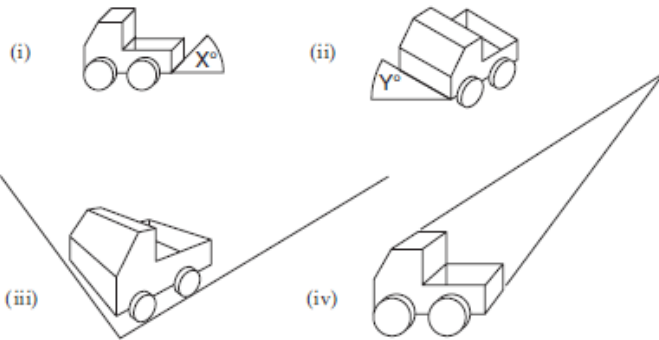
2)

**Drawing X**



# Homework 9 - Revision

- (a) Name the drawing type used in each of the views, shown below.



(i) .....

(ii) .....

(iii) .....

(iv) .....

- (b) State the value of angle X in view (i).

.....

- (c) State the value of angle Y in view (ii).

.....

(6 marks)

A school office has placed out green chairs for visitors and put a red notice board on the wall. A tint of green has been used for the walls.

- (a) State the mood being created by using green on the walls.

.....  
.....

- (b) State a reason for using red on the notice board.

.....  
.....

- (c) State a colour for the carpet that would **harmonise** with the green chairs.

.....

- (d) State what would be added to green to make the green tint.

.....

(4 marks) ☐

A clothing firm has produced a new line in Health and Safety work wear.

- (a) Yellow was chosen for the manufacture of safety vests. State the reason for this.

.....

- (b) What would be added to yellow to make a yellow **tint**?

.....

- (c) State a **secondary** receding colour that would make the vest stand out in a display.

.....

- (d) State how you would produce a **secondary** colour.

.....

- (e) State a tertiary colour that would **harmonise** with yellow.

.....

(5 marks) ☐

2

An architects firm has two offices, one in Glasgow and the other in London. Drawings are frequently passed between them. British Standards have been applied to all drawings.

(a) State **two** reasons why it is important to apply common standards.

(i) .....

(ii) .....

(b) Name a portable storage **device** that would allow the architect to take CAD files home.

.....

(c) CAD software is used by the firm. Give **three** advantages that this has over manual drawing methods.

(i) .....

(ii) .....

(iii) .....

(6 marks)

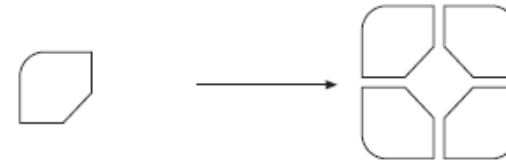
2

The various stages in producing a CAD drawing of a concrete building block are shown below.

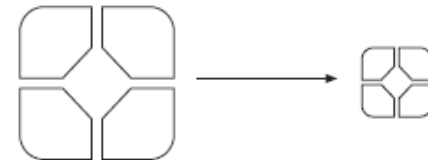
(a) State the **single** command that would be used for each stage.



(i) .....



(ii) .....



(iii) .....



(iv) .....

(b) State which feature of a CAD package would allow the concrete building block to be stored for future use in different drawings.

.....

(5 marks)



4

Many companies now use different software packages and output devices.

(a) State the type of software package that would be used for the following.

(i) Producing an advertising leaflet containing text and graphics.

**Answer** .....

(ii) Producing a fully dimensioned working drawing.

**Answer** .....

(iii) Producing a fully rendered graphic of a new house design.

**Answer** ..... KI 3

(b) State **two** output devices that could be used to obtain hard copies of a computer rendered graphic.

**Device 1** ..... **Device 2** ..... KI 2

(c) State what is meant by the term compatible when applied to computer software.

**Answer** .....  
 ..... KI 1

(d) State what is meant by the term layering when used in a CAD software package and give an example of its use.

**Layering** .....  
 .....

**Example** .....  
 ..... KI 2

(e) State **one** advantage of a CAD library when working on new designs.

**Advantage** .....  
 ..... KI 1

Total (KI 9)



# Homework 10 - Surface Development

5

The complete plan and elevation of a small bank based on a rectangular pyramid are given below. An illustration is shown.

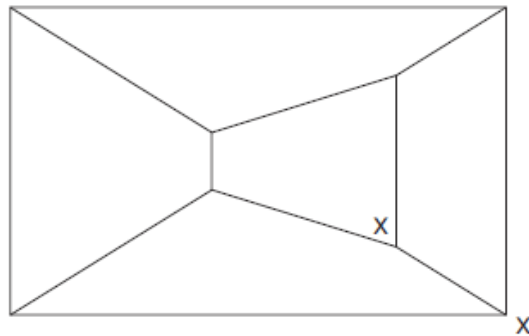
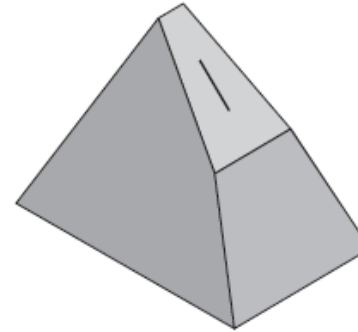
Draw, in the positions given:

- (a) the end elevation;
- (b) the true shape of surface A;
- (c) the development of the sloping sides of the bank, opened along edge X-X.

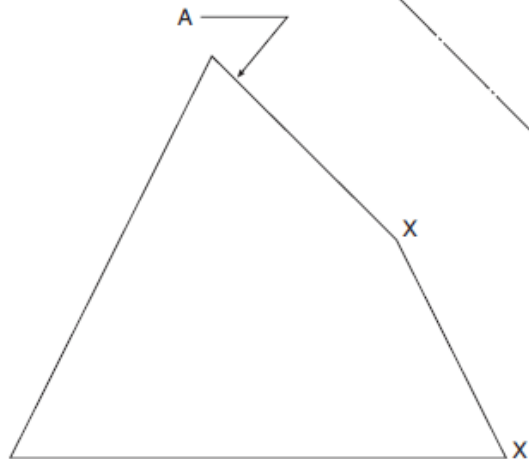
Do not show hidden detail.

Do not draw the slot shown in the illustration.

(10 marks)



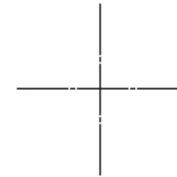
Plan



Elevation

True Shape

End Elevation



Development

a	
b	
c	
d	
e	
f	
g	
h	
i	
j	
k	
l	
m	
n	

7

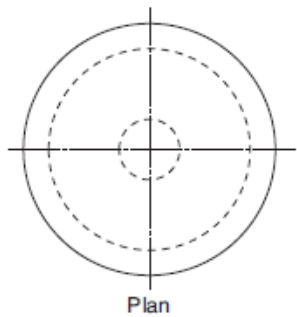
The plan and end elevation of a litter bin on a stand are given.

Draw, full size:

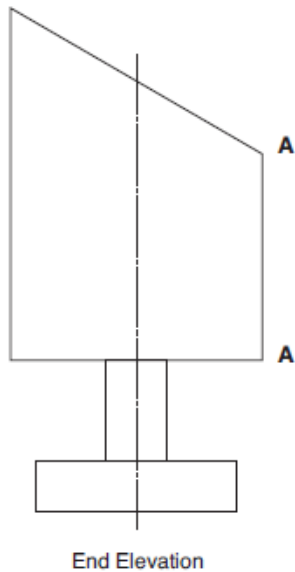
- (a) the elevation;
- (b) the true shape of the sloping surface;
- (c) the development of the curved surface of the bin excluding the stand, open along the seam **A-A**.

Show all hidden detail

(15 marks)



Elevation



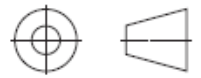
True Shape

A

A

Development

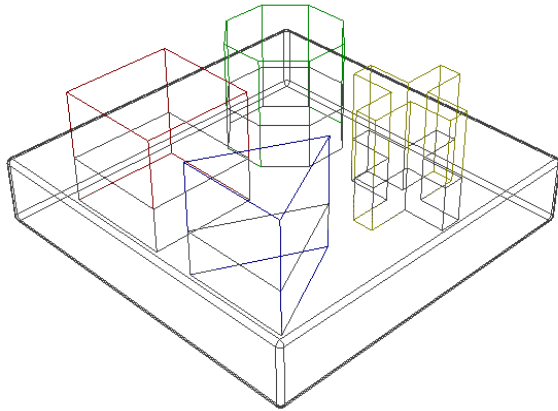
7



a	
b	
c	
d	
e	
f	
g	
h	
i	
j	
k	
l	
m	
n	

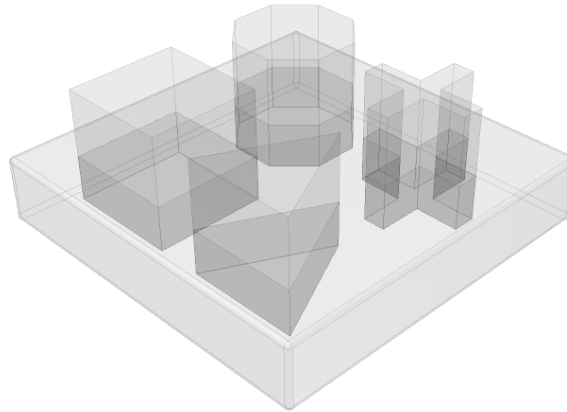
# Homework 11 - 3D Modelling

State the name given to the type of 3D Computer Generated Model shown below and explain the purpose of each.



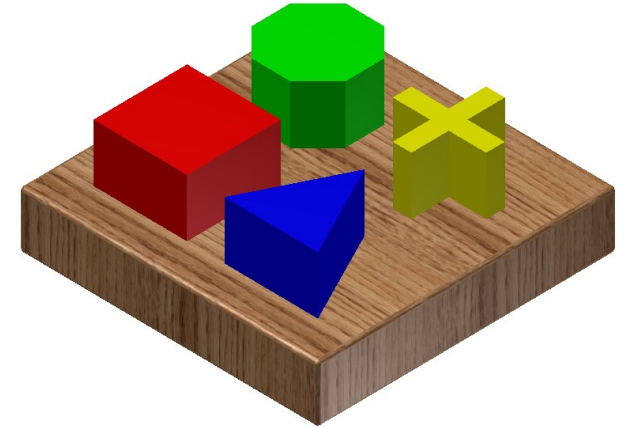
Term:

Explain:



Term:

Explain:



Term:

Explain:

A company that designs conservatories now uses computers for all its graphic needs.

- (a) Other than speed of production state **three** advantages of using computers when compared with manual methods of producing new designs.

1 .....

.....

2 .....

.....

3 .....

.....

KI 3

- (b) State **three** disadvantages that the firm could have found by using computers.

1 .....

.....

2 .....

.....

3 .....

.....

KI 3

- (c) State **two** input devices that could be used to transfer the company's existing manual drawings to the computer's memory.

Device 1 ..... Device 2 .....

KI 2

- (d) State the **type** of software package that would be used by the company for the following.

- (i) Producing an advertising leaflet, containing text and graphics, showing the latest design.

Answer .....

- (ii) Producing a fully dimensioned production drawing of a new conservatory.

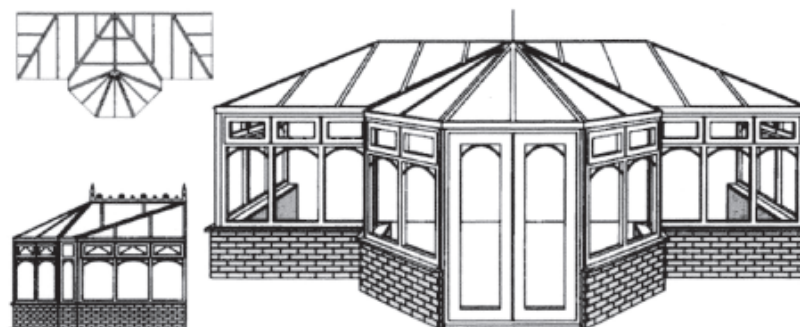
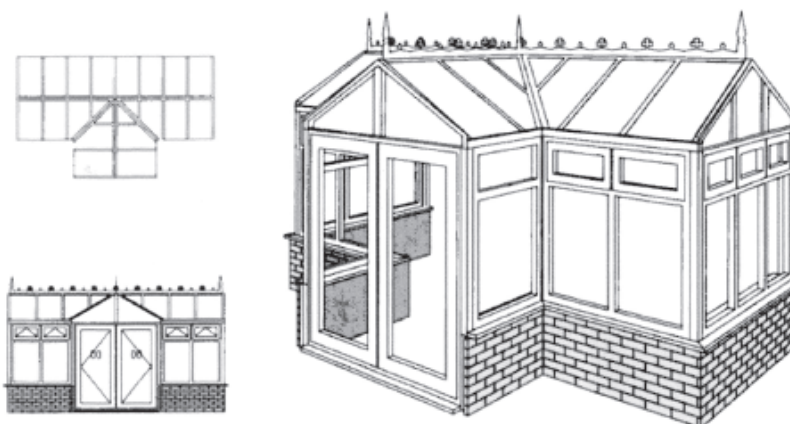
Answer .....

- (iii) Producing a fully rendered graphic of the new conservatory.

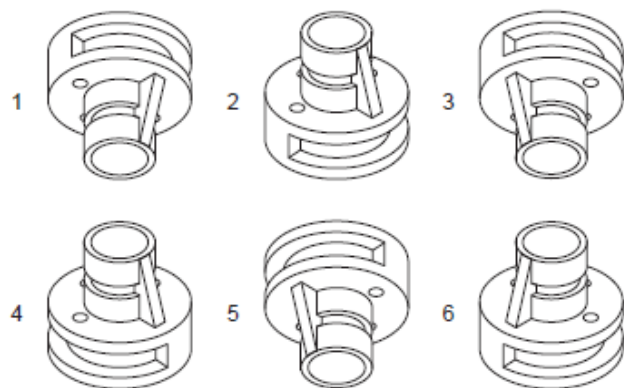
Answer .....

KI 3

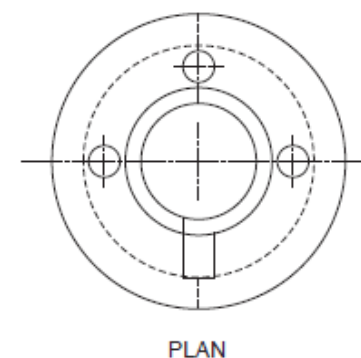
Total (KI 11)



The elevation, end elevation and plan of part of a pipe bracket are shown in **Drawing X** and are drawn using BSI drawing conventions.



**Drawing X**



- (a) State which **two** of the views 1 to 6 above, represent the bracket shown in **Drawing X**.

**Answer 1** ..... **Answer 2** .....

**KI 2**

- (b) State the name given to the types of view shown above.

**Answer** .....

**KI 1**

- (c) State the general name given to views like the ones above, in which you see all three dimensions.

**Answer** .....

**KI 1**

- (d) Views 1 to 6 above are not drawn to scale. State **two** factors that effect the scale used for drawings.

**Answer 1** .....

.....

**Answer 2** .....

.....

**KI 2**

- (e) BSI drawing conventions are commonly used in the production of new designs. State **one** possible benefit to be gained by their use.

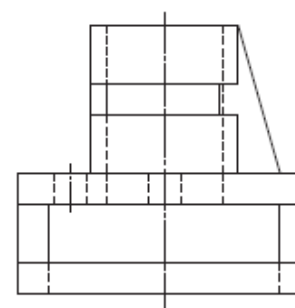
**Answer** .....

.....

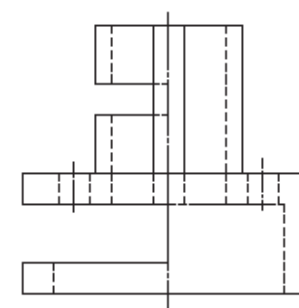
**KI 1**

- (f) Using the correct BSI convention for dimensioning, draw a diameter and a height to the elevation on **Drawing X**.

**KI 2**



**END ELEVATION**



**ELEVATION**

Total (KI 9)