

## Home Assignment — A

Q1. When presenting graphics using pen, pencil or any another medium, different techniques can be used to enhance the final drawing.

Describe each of the following illustration and presentation terms:

- Colour Gradient;
- Highlight
- Shadow;
- Texture;
- Grey Scale;
- Monotone.

Q2. Graphic communication can be split into three subsections of styles.

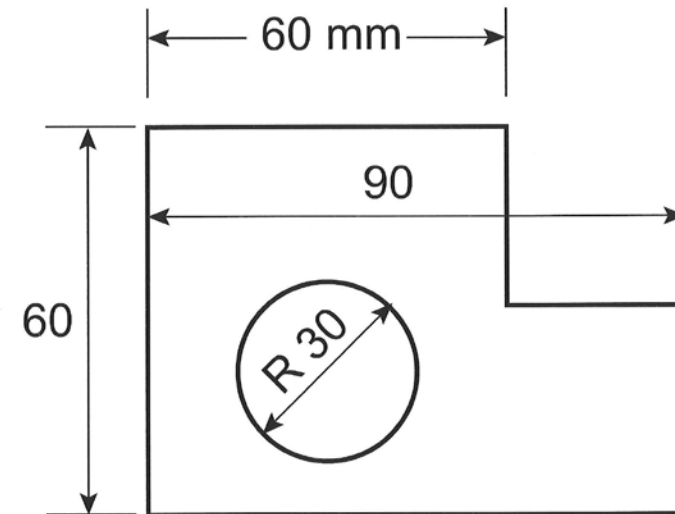
Each one has its own type of graphic communication.

The three sections are preliminary, production, and promotional graphics.

- Explain the purposes of preliminary graphics.
- Name a style of drawing that can be used in preliminary graphics.
- Describe the effect you would expect to see from this style of drawing.

## Homework — Book 3

Q3. In the drawing below, there are four errors in applying British Standards conventions with respect to dimensioning.



Copy the drawing and apply the conventions correctly.

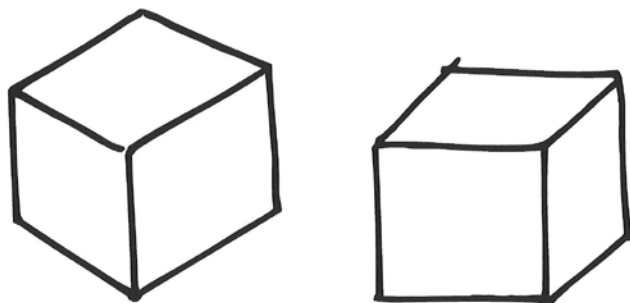
Q4. Any computer system is controlled from a number of input and output devices.

- Sketch and name three input devices.
- Suggest a suitable style of input for each.

## Home Assignment — B

- Q1. Initial planning can save a great deal of wasted time when preparing drawings.
- Drawing sheets are presented in two formats.  
Sketch and name each format.
  - State two factors which determine the choice of scale for a drawing.

- Q2. There are many different 2½D drawing styles.  
Two styles are sketched below.

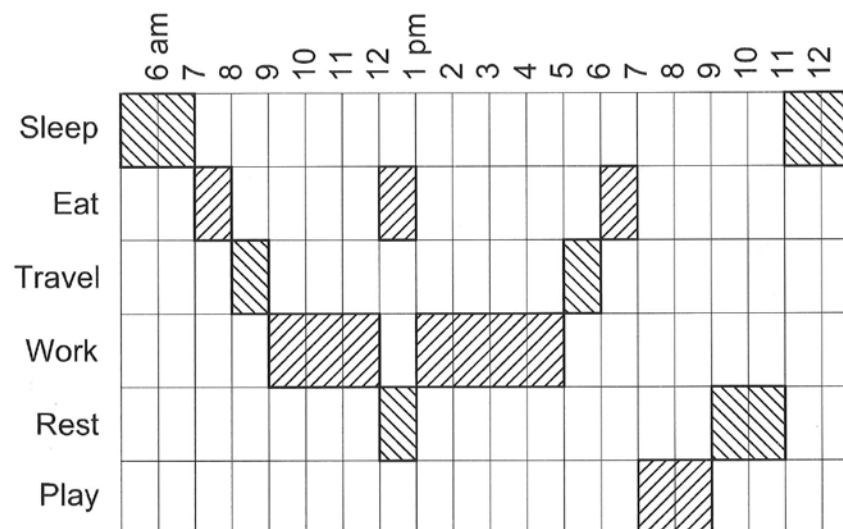


In turn, copy the drawings and:

- name the graphic style shown.
- suggest the main advantage it has.
- state any of the disadvantage it may have.

## Homework — Book 3

- Q3. A Gantt chart is a time management chart which helps you to manage your resources to their most efficient.  
Study the Gantt chart below which shows the normal working day of an office worker:



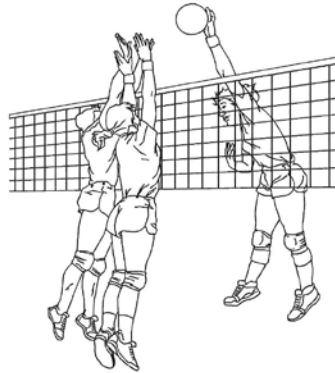
State the total time the worker spent:

- travelling to and from work;
- playing at the gym;
- resting;
- sleeping.

## Home Assignment — C

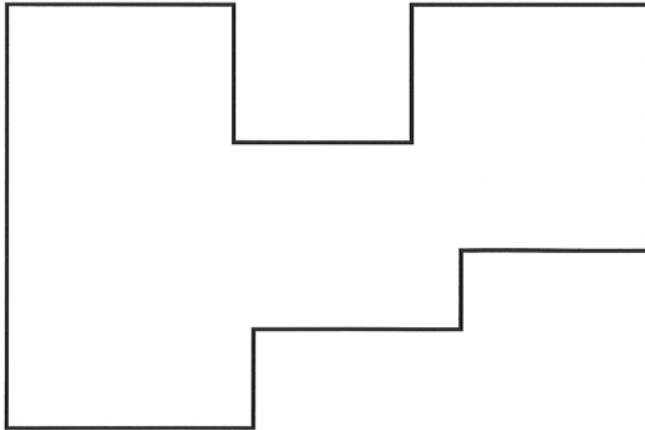
Q1. When working on a new project many different graphics styles can be utilised.

State two reasons that a sports company would use preliminary graphics.



Q2. Using the drawing below as a start, demonstrate the following styles of dimensioning:

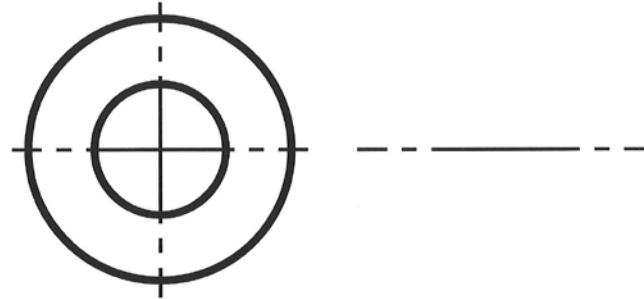
- chain dimensioning;
- parallel dimensioning;
- dimensioning from a datum line.



## Homework — Book 3

Q3. A graphic symbol is used to identify that an orthographic drawing has been drawn using Third Angle Projection.

- Complete the drawing of this symbol.
- Explain why this symbol has to be clear.



Q4. There are many different 2½D drawing styles.

Explain, using appropriate sketches, the following two drawing styles:

- Isometric
- Oblique

## Home Assignment — D

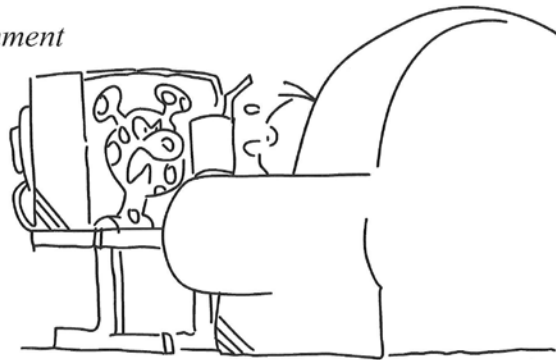
Q1. "Planning is an important part of any drawing."

Explain in your own words what you think of this statement.

Q2. Create a Gantt Chart showing the life style of a typical teenager over a normal weekend.

Your example should be split into one hour units and could cover any or all of the following topics plus any other particular to you.

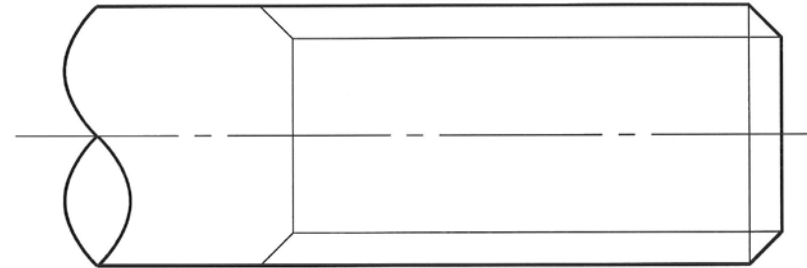
- Sleeping
- Eating
- Working
- School
- Sport
- Entertainment



## Homework — Book 3

Q3. Copy and complete the drawing below by dimensioning, to BS conventions, the threaded section of the shaft.

Q4. When presenting graphics using pencil, pen or any



another medium, different techniques can be used to enhance the final drawing.

Describe each of the following illustration and presentation terms:

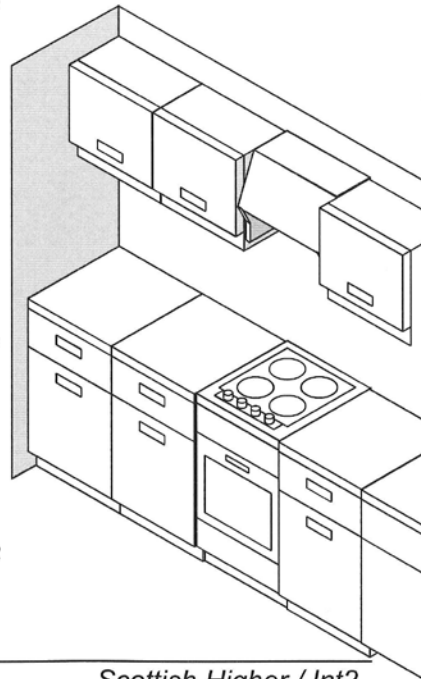
- Outline;
- Exploded drawing;
- Pictorial;
- Highlight;
- Shadow;
- Reflection.



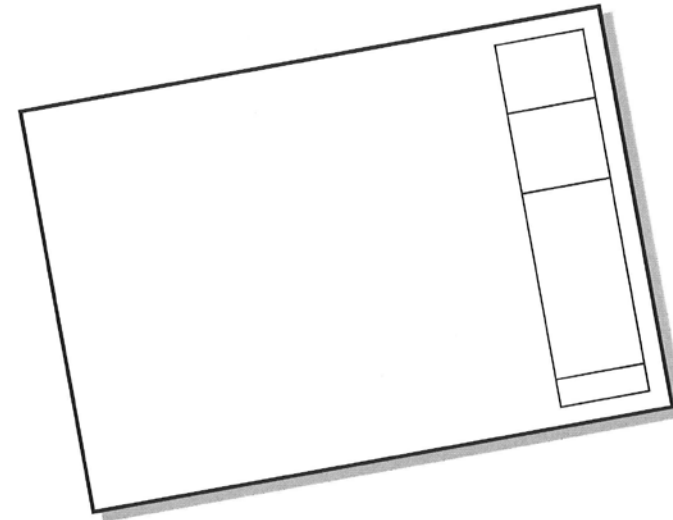
- Q1. State the CAD command which would be used to:
- a) Enlarge a small part of the screen to full size.
  - b) Turn a selected object through a selected point.
  - c) Move the viewing area without changing the actual position of the drawing.
  - d) Produce a hard copy of a drawing.
  - e) Store a drawing for further use.

Q2. There is a structured system of graphic design which works its way through the three Ps - Preliminary, Production and one other.

- a) What is the third, and last, of the 3 Ps?
- b) State two reasons why an interior design company would use preliminary graphics.
- c) How would these graphics differ from those used in production drawings?



Q3. The projection symbol is one piece of information contained in a Name or Title Block.



List six further pieces of information that a title block could contain.

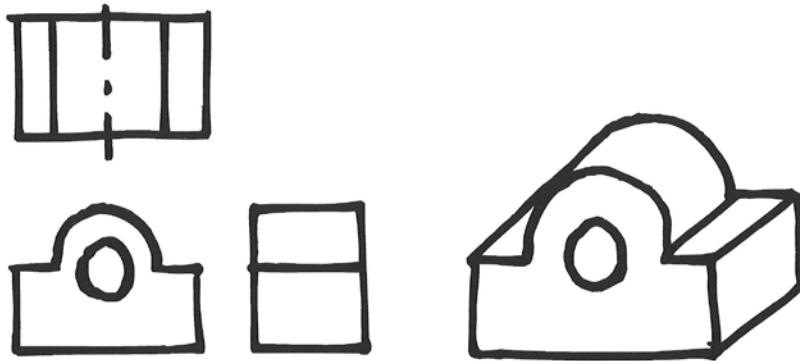
Q4. There are many different 2½D drawing styles.

Explain, using appropriate drawings, the following two drawing styles:

- a) Planometric
- b) Perspective

## Home Assignment — F

Q1. There are many different drawing styles.  
Two styles are sketched below.



In turn, copy the drawings and:

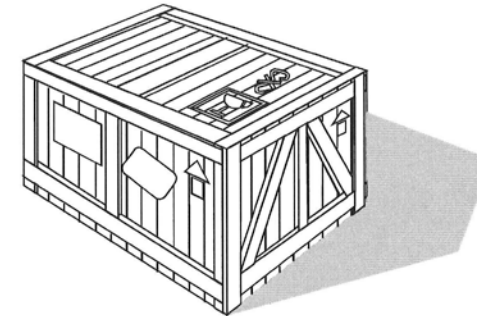
- name the graphic style shown.
- suggest the main advantage it has.
- state any of the disadvantage it may have.

Q2. State the CAD command which would be used to:

- Shrink the picture on the screen to show the whole page.
- Changes the size of a selected object.
- Store a second copy of a file for safety.

## Homework — Book 3

Q3. A manufacturing process employs six workers (A-F) to construct a wooden package.



From the information listed below, draw a Gantt chart for the process.

- Worker one (A) requires 6 weeks.
- B needs 3 weeks  
B starts half way through A's time.
- C needs 2 weeks  
C starts when B is finished.
- D needs 2 weeks  
The first week just after C is finished  
The second week to help F.
- E needs 5 weeks  
The first week to overlap the first week of D.
- F needs 2 weeks at the end of the process.

## Home Assignment — G

Q1. An expanding building company is considering installing a CAD system for producing construction drawings.

Give four reasons why such a system could benefit the company.

Q2. Graphic communication can be described as preliminary, production, and promotional graphics.

Explain the purposes of production graphics.

Q3. "Selecting the correct scale for a complex drawing is very important so that the result is easy to read and to use in particular situations."

a) Discuss this statement giving examples to support your argument.

b) Explain the difference, giving suitable examples, between the following three scales:

(i) 5:1

(ii) 1:1

(iii) 1:5

c) Suggest a scale for the following drawings?

(i) Road map.

(ii) Electrical circuit diagram.

## Homework — Book 3

Q4. Manufacturing tolerances are very important to all industries - from electronics to ship building.

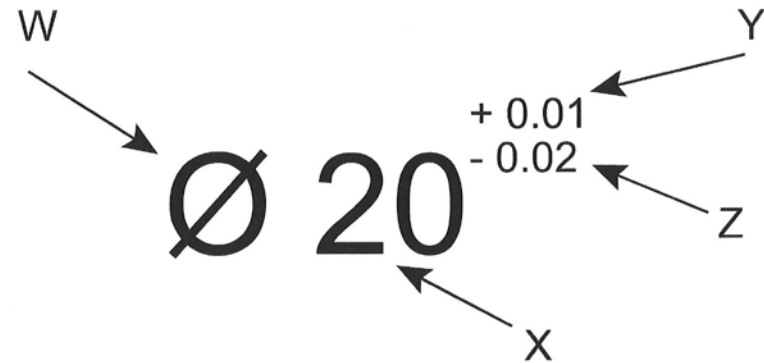
a) Explain what part of the dimension:

(i) W points to;

(ii) X points to;

(iii) Y points to;

(iv) Z points to.



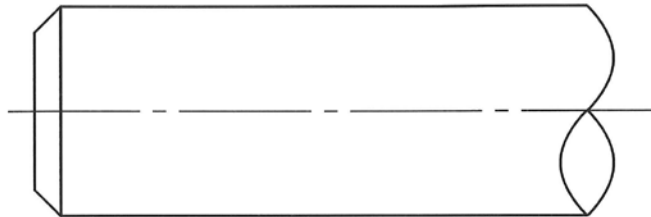
b) What is the maximum size allowed?

c) What is the minimum size allowed?

d) Explain why tolerances are often used.

## Home Assignment — H

Q1. Copy and complete the drawing below by dimensioning, to BS conventions, the 45° chamfer on the shaft end.

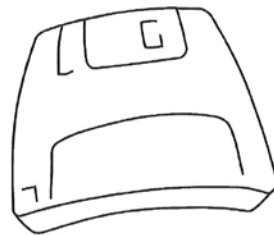


Q2. A small graphics company is looking to equip itself with some new hardware.

- Name an output device the company could purchase to produce hard copy.
- Give two reasons to justify the choice.

The company's graphics files will require more memory than can be stored on a standard 1.44Mb floppy disc.

- Suggest a non-portable method of handling and storing these files;
- Suggest a portable method.

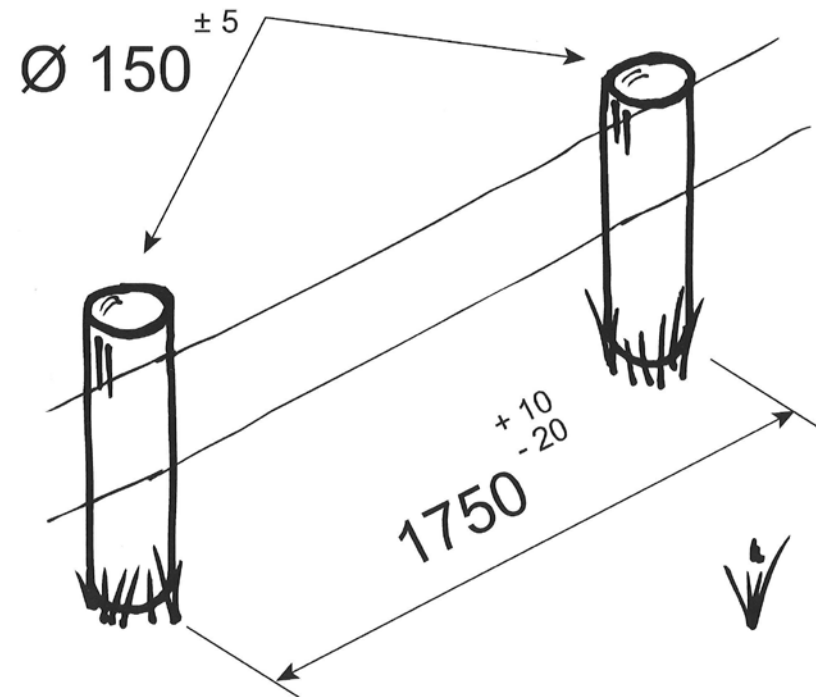


## Homework — Book 3

Q3. Two identical fence posts, each nominally round 150mm, are set apart at 1.75m nominal centres.

There are tolerances on both the sizes and locations of the posts and these are shown below.

- State the maximum and minimum post sizes.
- State the maximum and minimum possible clear widths between the posts.



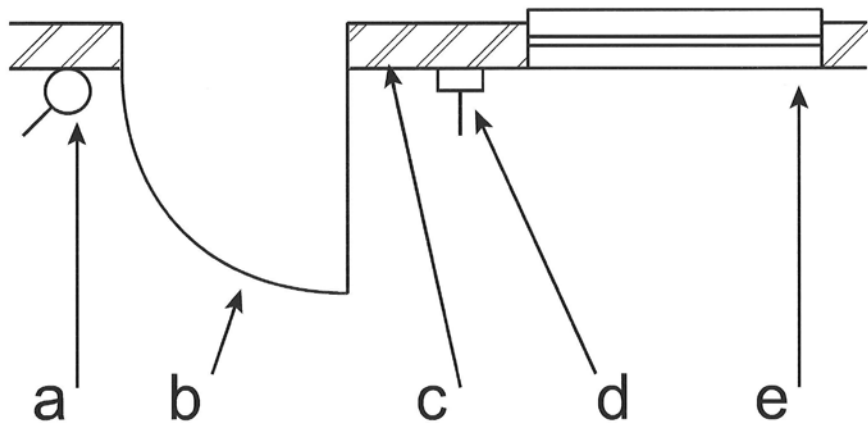
## Home Assignment — I

Q1. Write a short statement describing each of the following processes associated with computer graphics.

- a) Cut and Paste;
- b) Copy and Paste.

Q2. Building drawings use a common symbol library to ensure that the drawings are easily read by all.

Copy the following drawing and name the five symbols noted below.



## Homework — Book 3

Q3. In engineering drawing, state two parts that are not normally sectioned when a cutting plane passes longitudinally through them.

Q4. State the CAD command which would be used to:

- a) Draw a diagonal pattern into an area.
- b) Make an exact replica of a selected object.
- c) Transform the position of a selected object.
- d) Copy a selected drawing many times using a mathematical formula.
- e) Copy a selected drawing many times around a circular path, using a mathematical formula.

Q5. When working with a CAD application you will often come into contact with a library of parts.

- a) Explain the advantages such a library has.
- b) Suggest four members, or drawings, seen in an Architectural library.
- c) Suggest four members of an Electronics library.
- d) Explain how you would build your own library of parts for a CAD project you have been working on recently.

## Home Assignment — J

Q1. Copy the 100mm square as shown below on the left.

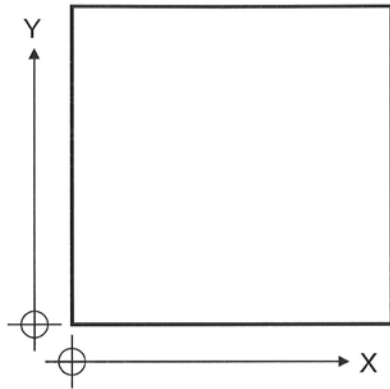


Table of  
Coordinate Dimensions

Hole	X	Y	Ø
A	20	20	20
B	20	80	10
C	80	20	10
D	80	80	20

- Draw the four holes specified in the table of coordinate dimensions on the right, showing the centres clearly.
- State one advantage of using this form of dimensioning.

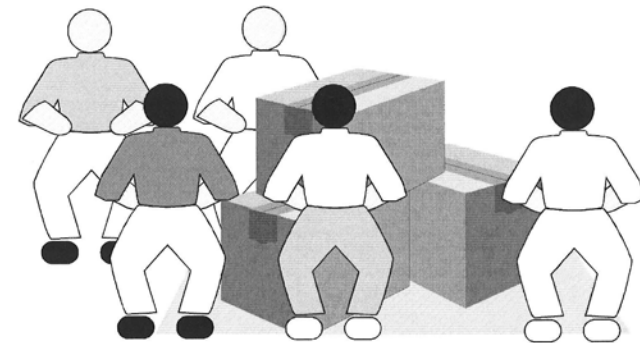
Q2. A multi-pen plotter and a colour inkjet can each produce hard copies in colour.

Explain why the inkjet printer would be more suitable than the multi-pen plotter for producing a hardcopy of a photograph.

## Homework — Book 3

Q3. An assembly process employs eight workers (A-H). From the information below, draw a Gantt chart for the assembly process.

- Worker one (A) requires 2 hours then helps F for the full 2 hours.
- B needs 3 hours - and starts half way through A's time.
- C needs 2 hours - and starts when B is finished.
- D needs 4 hours - the first half just after A is finished - the second half to help F.
- E needs 5 hours - the first hour to overlap the first hour of B.
- F needs 2 hours - at the end of the process.
- G helps C for the full 2 hours.
- H helps E for the first 2 hours and then F for a single hour.



## Home Assignment — K

Q1. Graphic communication can be described as preliminary, production, and promotional graphics.

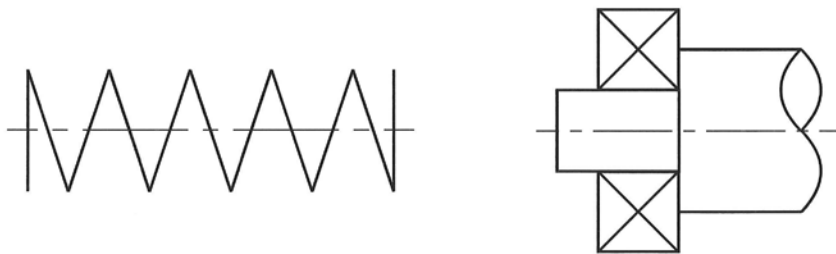
Explain the purposes of production graphics.

Q2. Autotracing and colour gradients are two features of a computer illustration and presentation package.

Describe each term and give a reason for using each.

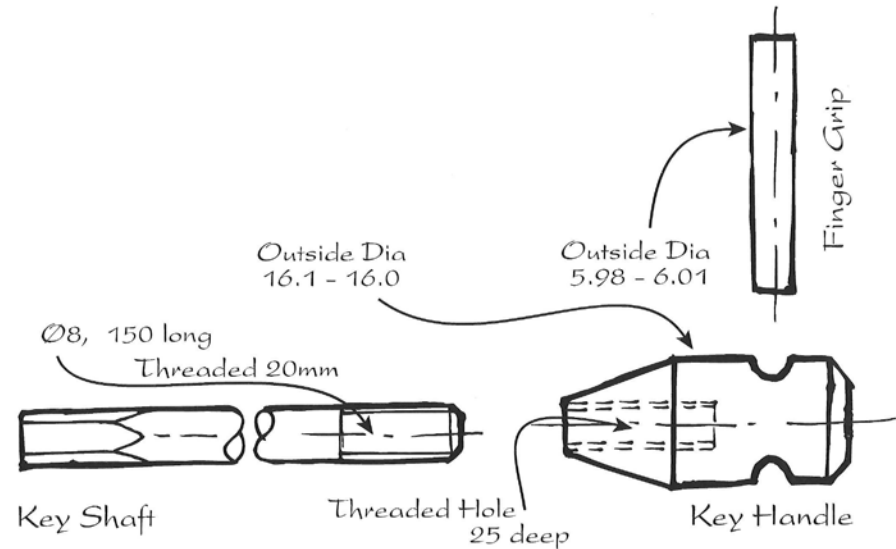
Q3. The drawing below shows two pieces of conventional representation of information that may be seen in a production drawing.

State what information is being represented.



## Homework — Book 3

Q4. The sketch below shows size and tolerance information for parts of a bicycle disc brake key.



Copy the drawing above and, using British Standards conventions:

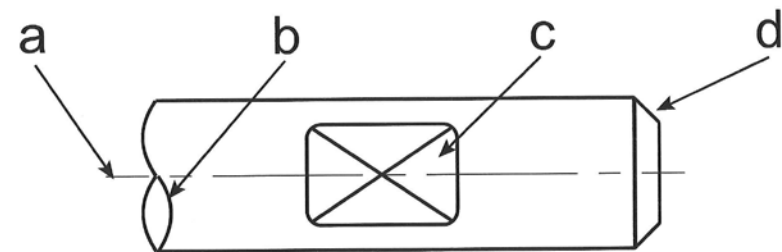
- dimension the key shaft to show its length and diameter;
- show the toleranced dimension on the key handle;
- dimension the threaded hole in the key handle;
- show the toleranced dimension of the finger grip.

## Home Assignment — L

- Q1. “Orthographic drawings, to British Standards (BSI), are unlikely to be necessary at the “preliminary” stage of a product’s design.”
- State why this statement is generally true.
  - Name three types of graphics which are suitable.
  - At which stage of a product’s development should BS standards be followed in full.
  - What are the main advantages of this system of drawing?
- Q2. When a small business wanted to improve the CAD system they decided to purchase a higher specification monitor.
- In order to get the most from this purchase, a graphic card may be needed to be added to the computer.
- What is the reason for the graphic card?
  - What are the possible advantages of the new monitor?
  - If, in the future, the computer is to be upgraded further would the monitor also need replacing?
  - Why is this the case?

## Homework — Book 3

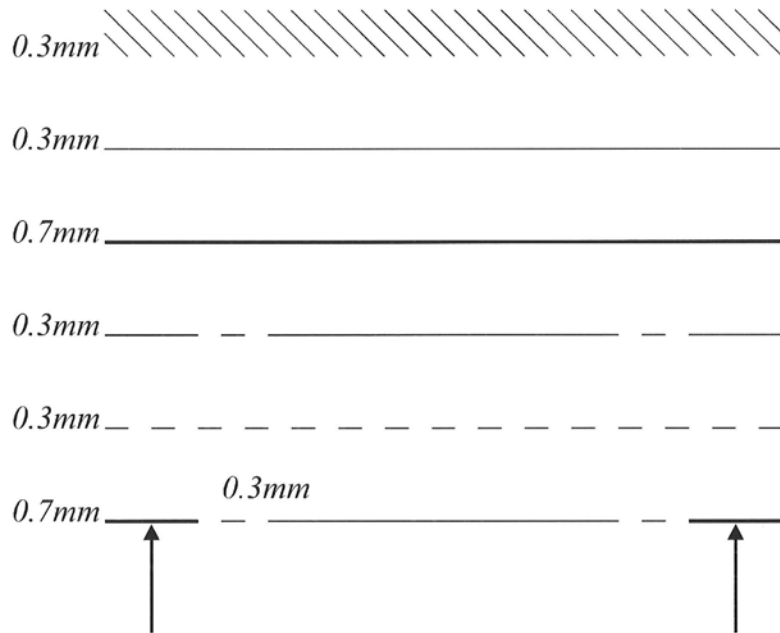
- Q3. Explain the different scales of:
- 1 : 10 and 10 : 1.
  - Suggest a suitable scale for each of the following examples:
    - A detailed drawing of a marker pen tip.
    - A floor plan for classroom furniture.
- Q4. On a recent visit to a museum you noticed a computer being used to enhance the learning of History.
- Suggest how you could use a computer modelling package to investigate the Scottish Castles.
- Q5. Copy the drawing below and describe the four British Standard conventions used.



## Home Assignment — M

Q1. CAD drawings rely on technology to keep the line types different enough to be understood.

Copy and name each of the following line styles.



Q2. Library and layering are two features of CAD work.

State two advantages of using each feature.

## Homework — Book 3

Q3. A part-time gardener has to look after a garden over a single year starting in October.



The tasks are as follows:

- First two months - general tidying up.
- Months 3 and 4 - In the greenhouse because of the weather - preparing seed trays and looking after pot plants.
- Mid February - Prepare flower beds which lasts until April.
- Start of April - Sow seeds outside and harden seedlings in greenhouse - four weeks to complete.
- May until mid September - General weeding.
- Mid May - Sow a lawn - takes two weeks.
- Mid June to end September - Grass cutting.

Assume four week months throughout.

Construct a Gantt chart which shows the gardener's work schedule.

## Home Assignment — N

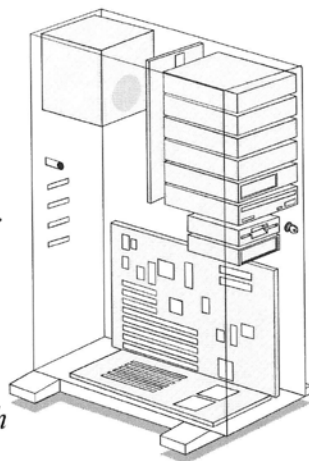
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Q1. Any computer system is controlled from a number of input and output devices.

- Sketch and name three different input devices.
- Explain the advantage each has.
- Sketch and name three output devices.
- Suggest a suitable style of output for each.

Q2. It is possible to extend the memory (RAM) capacity of a dedicated CAG computer system by adding different memory boards and cards.

- Give one common reason for needing to extend such memory capacity.
- What other main application type would be enhanced with the increased memory availability?
- Apart from memory, what other expansion card would increase the effectiveness of either of the noted applications?
- What other expansion option is available in order to speed up redrawing?

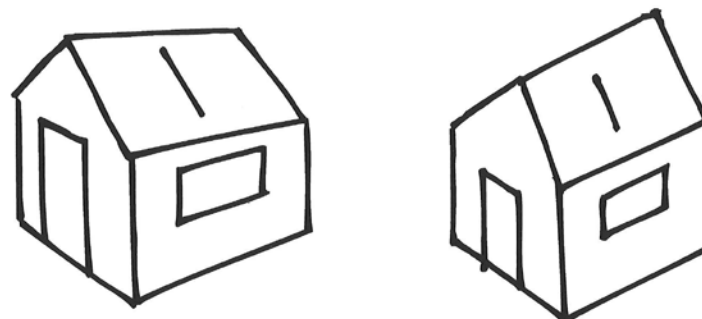


## Homework — Book 3

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Q3. There are many different drawing styles.

Two styles are sketched below.



In turn, copy the drawings and:

- name the graphic style shown.
- suggest the main advantage each has.

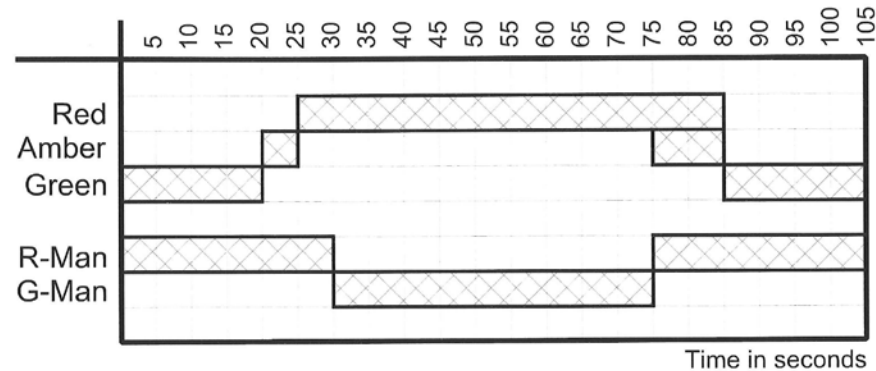
Q4. The following words are all terms that can be seen in most CAD packages.

Explain the use and advantage of each, giving examples where necessary.

- Snap to Points;
- Rubber Banding;
- Undo.

## Home Assignment — O

Q1. A gantt chart designed to help set the timings of a Pelican crossing is drawn, in part, below.



How long:

- are you given to cross safely?
- is the traffic at a stop?
- after pressing the "Wait" button, do you have to wait until the green man lights up?
- are three light on at the same time?
- What extra line could you add to the chart?

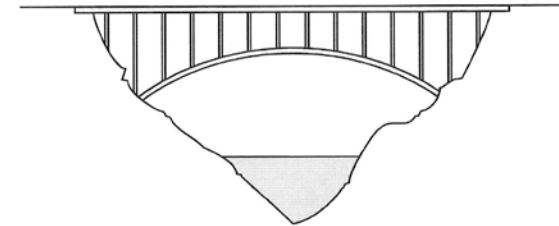
Q2. Describe clearly the computer-aided process layering, with particular reference to how an architect could use this feature.

## Homework — Book 3

Q3. The following commands and features are used in the production of engineering CAD drawings.

Describe the meaning of each of the following CAD commands.

- Pan;
- Snap;
- Mirror;
- Fillet;
- Chamfer;
- Transform.



Q4. Substantial savings in time and money could attract a small manufacturing firm to introduce a CAD (Computer Aided Draughting) system into their design area.

Discuss how savings could be achieved by using a suitable system.

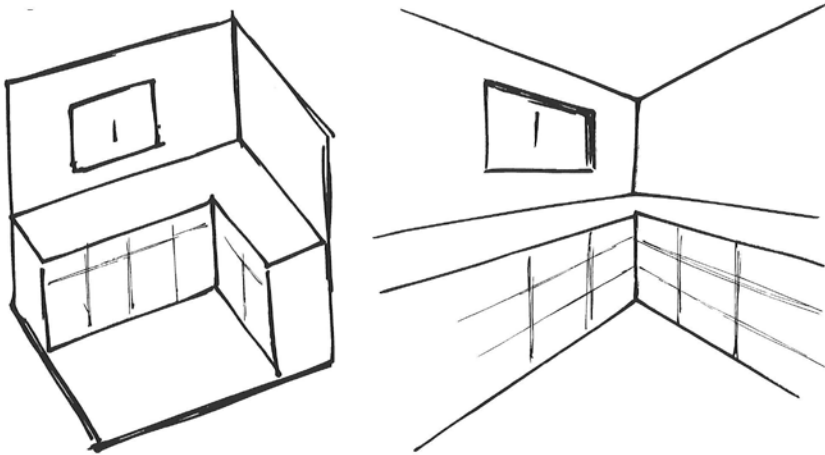
Q5. "The widespread use of British Standards is an important factor throughout the World."

Discuss this observation fully.

## Home Assignment — P

Q1. There are many different drawing styles.

Two styles are sketched below.



In turn, copy the drawings and:

- name the graphic style shown.
- suggest the main advantage each has.

Q2. Sketch, showing in context, the BS symbol for each of the following items:

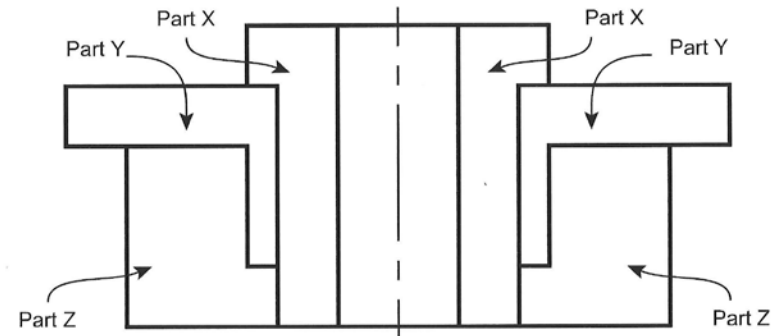
- Single lamp;
- Strip light;
- Wall switch;
- Wall socket.

## Homework — Book 3

Q3. Graphic communication can be described as preliminary, production, and promotional graphics.

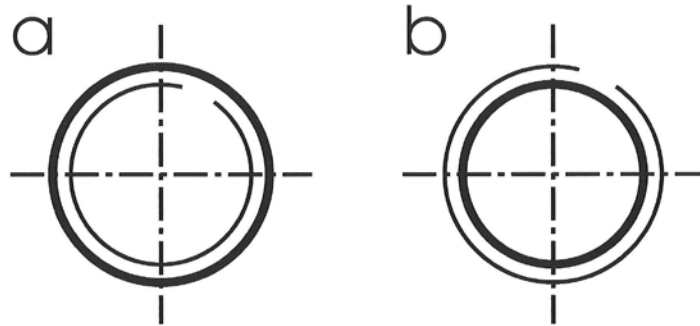
Explain the purposes of promotional graphics.

Q4. Draw, to the correct British Standards, the hatching required in the three parts of the assembly to complete the drawing given below.



- Q5.
- Explain, with examples, the “Gantt Chart”.
  - What is the advantage of using this type of chart in your work?
  - Construct such a chart for a day in the life of a school person limiting any time units to one hour.
  - What is this chart similar to?

Q1. The drawing below shows two pieces of conventional representation of information that may be seen in a production drawing.

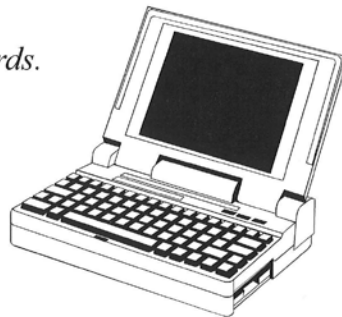


State what information is being represented.

Q2. The world of technology and computers adds many new terms to a dictionary.

Briefly explain the following words.

- a) Back-up;
- b) Hard Disc;
- c) Application;
- d) Hardware;
- e) Hardcopy.



Q3. Quickly sketched 2½D drawings are unlikely to be acceptable during the “production” stage of product design.

- a) State why this is generally true.
- b) Name a graphic type which is suitable.
- c) Which stage would the 2½D drawing style be more appropriate?

Q4. An architect uses many layers on a CAD system to hold information on foundations, wall construction, windows and doors, and interior fittings.

- a) Explain the use of “Layering”.
- b) State two advantages this CAD routine has.
- c) What remains the same on all the layers?
- d) What information could be added on a fifth layer.

Q5. Tolerancing of drawings is so important during the design and manufacturing stages of a product’s life.

- a) Explain why it is necessary to tolerance some dimensions.
- b) Using a simple drawing, demonstrate the correct use of toleranced dimensions.

## Home Assignment — R

- Q1. The 3D visualisation of an object can be improved dramatically by computer software.
- Name a suitable type of package.
  - State six advantages of using such a program.
  - Explain, giving suitable examples, three of the main tools available to you in this package.

- Q2. Graphic communication involves many different types and styles of graphical presentation. Four of these are:

- Surface Development
- Site Plan
- Rendered Sketch
- DTP

For each of the above:

- State two industrial/commercial operators who would be likely to make use of the style.
  - Provide two pieces of graphical information you would expect to be on the drawing.
- Q3. Describe, giving the main advantages, the following output devices.
- High Res. Monitor
  - Colour Printer

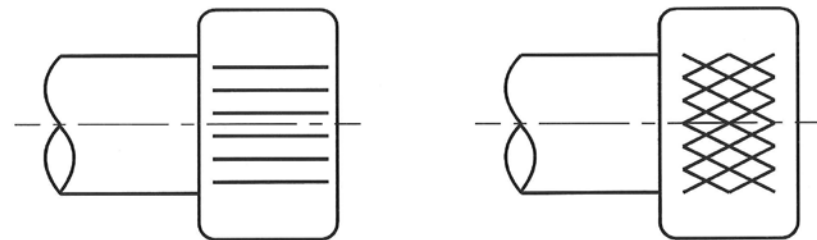
## Homework — Book 3

- Q4. Assorted input devices suit different applications.
- Name three different hand operated computer input devices.
  - Describe the advantages each has.

- Q5. Explain, giving examples, the difference between the following modelling terms:

- Wire Frame;
- Surface Model;
- Extrusion;
- Sweep.

- Q6. The drawing below shows two pieces of information that may be seen in a production drawing.



State what information is being represented.

## Home Assignment — S

Q1. Describe the purpose of each of the following as used in the construction industry.

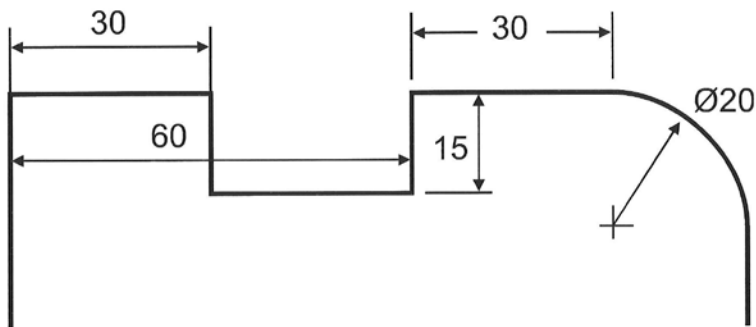
- Site Plan;
- Location Plan;
- Floor Plan.

Q2. Describe, with the aid of a sketch, the purpose of the following sectional views.

- Section in two or more parallel planes (stepped sectional view).
- Half sectional view.

Q3. In the drawing below, there are three errors in applying BS conventions with respect to dimensioning.

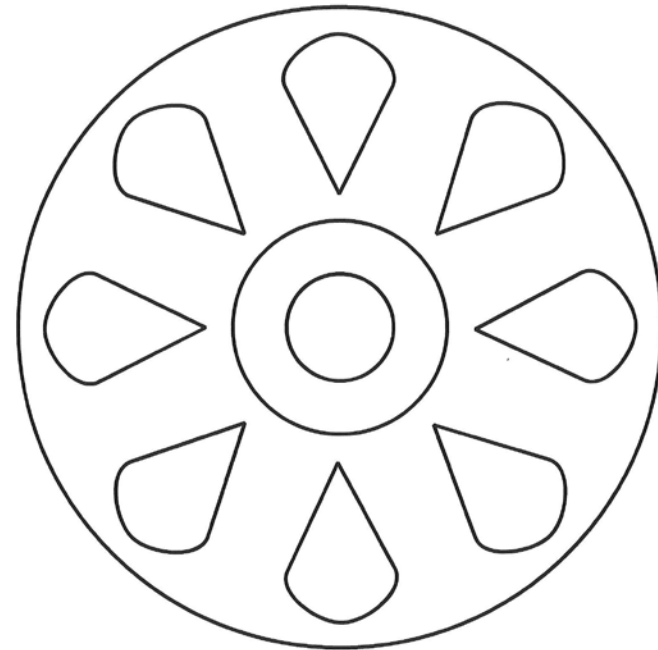
Detail and correct each fault.



## Homework — Book 3

Q4. CAD programs are designed to save the user time as well as enhancing accuracy.

- Explain, using the correct terms, how you would draw the object, shown here, using any common CAD package.



- What is missing from the drawing?
- How could you add these details using the program?

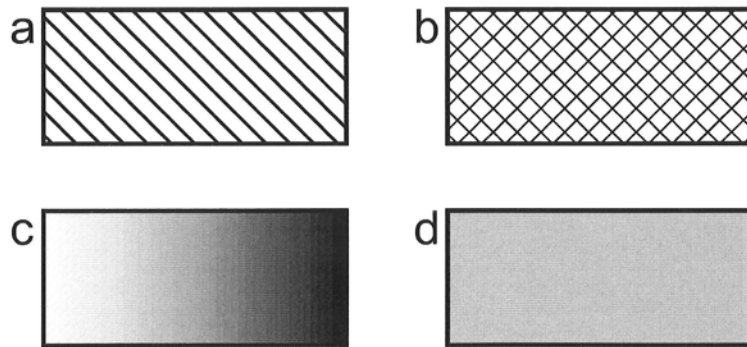
Q1. Name four factors that may influence the choice of dimensional tolerances.

Q2. The design of a DTP document can be carried out in three stages:

- a) Thumbnail Sketches;
- b) Working Roughs;
- c) Presentation Visuals.

Describe the purpose and the process at each stage.

Q3. State the names of the computer-aided fill features illustrated.



Q4. Using photographs in DTP documents is desirable.

- a) Name two devices that can be used to input photographs to a computer's memory for use in a DTP document.
- b) Compare the benefits of using each input device.

Q5. Rapid application of colour and shading is a major feature of CAG, but reproducing quality hardcopy can be expensive.

- a) Discuss the main advantages of CAG with respect to colour.
- b) List three reasons behind the relatively high cost of colour output.
- c) State two methods of obtaining colour output.

Q6. Four styles of 2½D drawing are Isometric, Oblique, Planometric and Perspective.

Which style is best suited to draw:

- a) Room interiors?
- b) Circular surfaces or holes?
- c) Which style is more realistic to the eye?
- d) Which two styles are easier to understand?

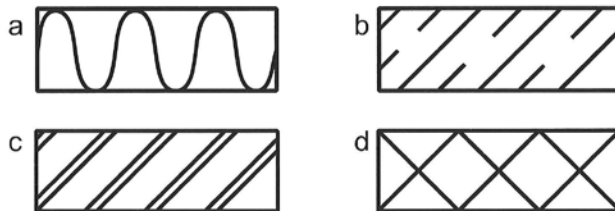
Q1. When using the computer to create a 3D model you are often given a selection of viewing modes.

Explain each of the following terms and include their advantages and disadvantages:

- a) Wire Frame;
- b) Hidden Line Removal;
- c) Surface Model;
- d) Solid Model.

Q2. A number of British Standards convention graphics, showing different materials, are shown below.

State what each of the conventions represents.



Q3. Explain the meaning of each of the Desk Top Publishing terms listed below.

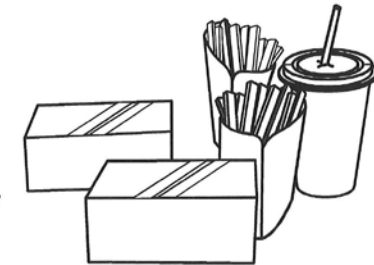
- a) *Headline*
- b) *Justification*
- c) *Format*
- d) *Caption*

Q4. A fast food company employs three workers to prepare and serve at the desk.

Cooking takes 6 minutes.

Packaging takes 2 minutes.

Ordering and serving takes 2 minutes before and after the packaging.



- Worker A takes an order which B then cooks.
- Worker C packages and serves the first order.
- C takes a second order after A is finished with her customer's order.
- This second order is then cooked by A.
- Worker B packages and then serves the second order.
- A takes the third customer in line and takes her order.
- This third order is cooked and packaged by C.
- The third order is served by B.

Construct a Gantt chart which clearly shows how each of the workers (A-C) is kept busy.

## Home Assignment — V

Q1. Explain the meaning of each of the Desk Top Publishing terms listed below.

- a) Point;
- b) White Space;
- c) Cropping;
- d) Master Page;
- e) Margin;
- f) Column.

Q2. You have been asked to advise a small company which is going to purchase a computer system to enable them to produce their drawings more effectively.

- a) Detail the hardware you would advise the company on, including appropriate inputs and relevant outputs.
- b) Suggest three styles of software that the company should start off with.

Q3. For each of the following main types of graphics software explain, using technical terms, the main features and state (and justify), suitable, but different, outputs.

- a) Pixel based
- b) X-Y coordinate
- c) X-Y-Z Coordinate



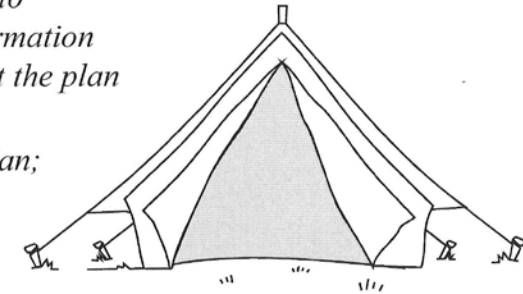
## Homework — Book 3

Q4. There are a number of guidelines to aid good design for desk top publishing (DTP).

Give four examples of good practice.

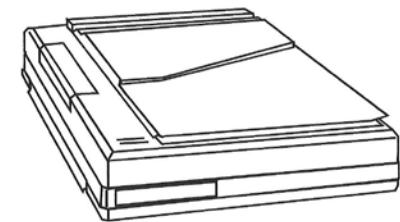
Q5. For each of the following write a sentence to indicate the information you would expect the plan to contain.

- a) Location Plan;
- b) Site Plan;
- c) Floor Plan;
- d) Detail Plan.



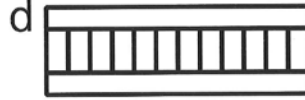
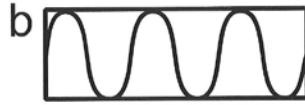
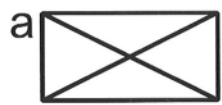
Q6. Explain, giving main advantages, each of the following input devices.

- a) Digital Scanner;
- b) Digitising Tablet;
- c) Digital Stills Camera.



Q1. A number of British Standards convention graphics, showing different materials, are shown below.

State what each of the conventions represents.



Q2. Planning a project before beginning it in earnest is so important for many reasons.

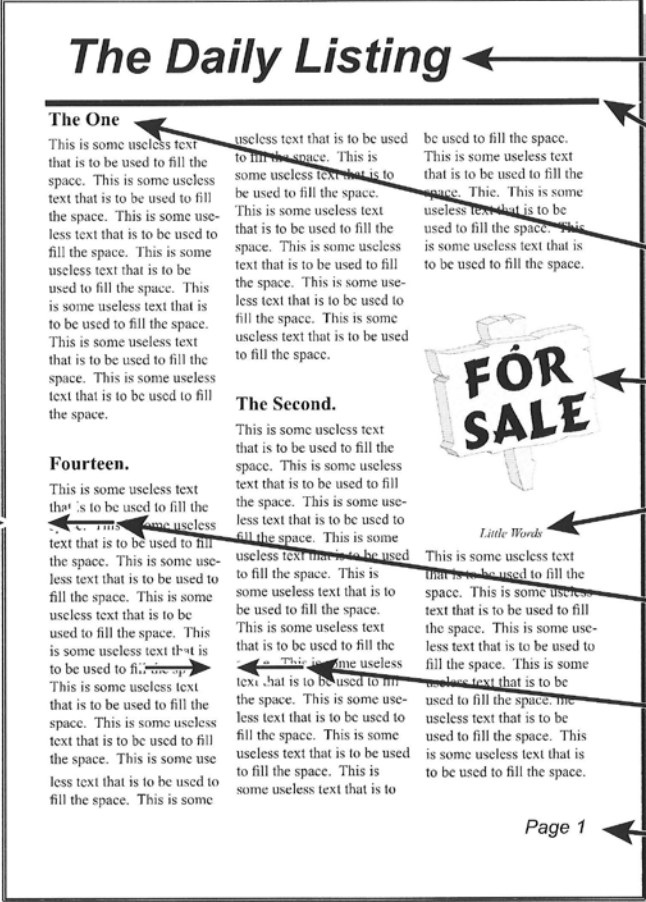
- Explain the advantages of preplanning.
- Demonstrate two different graphical methods of planning a job giving real life examples.

Q3. A typical company structure might include the following departments:

- |                   |              |
|-------------------|--------------|
| a) administration | b) design    |
| c) manufacturing  | d) marketing |

For each of the departments, give one type of graphic communication which could be used effectively.

Q4. A page layout is shown. State the DTP term for each of the areas, (a-h), indicated on the layout.



The diagram shows a page layout for 'The Daily Listing'. It includes a title, sub-headlines, body text, and signs. Arrows point from labels a-h to specific elements: a points to the title, b to the sub-headline 'The One', c to the first paragraph of text, d to a 'FOR SALE' sign, e to the sub-headline 'The Second', f to the second paragraph of text, g to a 'Little Words' sign, and h to the page number 'Page 1'.

## Home Assignment — X

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Q1. Explain the meaning of each of the Desk Top Publishing terms listed below.

- a) Folio;
- b) Header;
- c) Footer;
- d) Gutter.

Q2. Scales are used widely throughout the manufacturing and construction industries.

- a) State two reasons why Ordnance Survey scale 1:1250 plans are used in the construction industry.
- b) Why would a scale of 5:1 be seen on a manufacturing drawing?
- c) What is a suitable scale for a drawing of a pocket camera?
- d) What is a suitable scale for a drawing of a car?

Q3. Graphics for the modern design industry can be sectioned into three parts, often referred as the 3Ps.

- a) Name two types of drawing that can be used in production graphics and describe the purpose of each.
- b) What is the stage before production drawings?

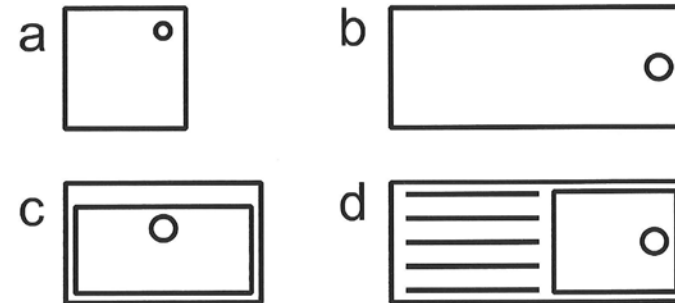
## Homework — Book 3

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Q4. Desktop Publishing has many different styles of drawing and manipulation attached to it.

- a) Describe the process of transferring a CAD drawing to a DTP document.
- b) State the name given to the small preliminary sketches used to generate ideas for a DTP document.
- c) State two examples of DTP graphics.
- d) Explain why a DTP package, rather than other computer packages, would be used to produce promotional graphics.

Q5. The drawing below shows information that may be seen in a production drawing.



State what information is being represented.

Q1. Four stages of any DTP could be:

- |                |               |
|----------------|---------------|
| a) Preparation | b) Editing    |
| c) Layout      | d) Production |

For the production of a ticket for a dance evening, describe two of the activities involved in each of these stages.

Q2. Computer software for 3D modelling has a number of powerful facilities for viewing components on screen.

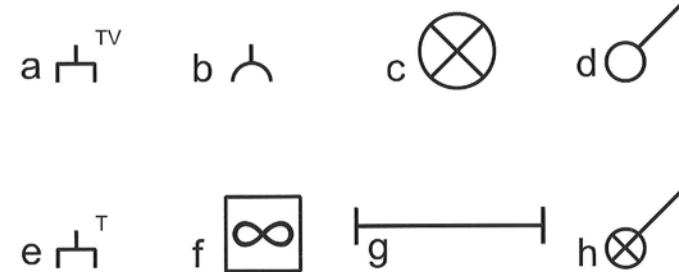
- State two of these facilities and, for each, describe two of the advantages.
- Describe one example of a graphic simulation with reference to an engineering application.
- Explain how a graphic simulation facility would be desirable.

Q3. Discuss fully, giving relevant (graphical or written) examples, the statement given below.

“Word Processing and Desk Top Publishing are normally used for different purposes, although they do have certain features in common.”

Q4. Different symbols can be seen in building drawings.

Name each of the eight drawn below.



Q5. In a kitchen suppliers shop, such as MFI, there is always a full-time designer who will help each prospective buyer design the kitchen to their individual requirements.

To complete this task efficiently the designer will use a computer as a tool.

- What style of software could he/she use to draw the kitchen?
- What input devices would suit the designer?
- What hardware could be used to output the kitchen for the customer?
- What are the main advantages for the consumer looking for a new kitchen?
- What are the main advantages for the designer working in the shop?