FURNISHING

Workbook 3

TOORMINA H.S.
PARTICIPATION WITH PURPOSE

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FURNISHING - Workbook 3

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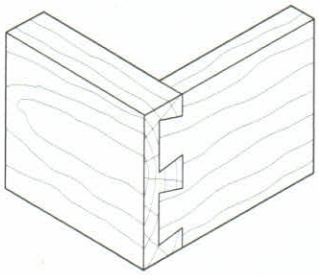
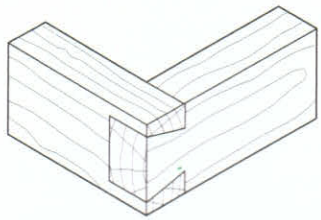
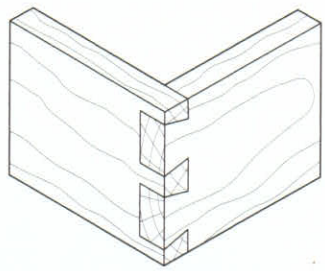
BASIC CONSTRUCTION

Construction Joints

1. Name the construction joints illustrated below and state a suitable use for each.







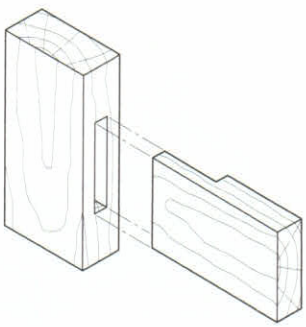
a. _____ b. _____ c. _____

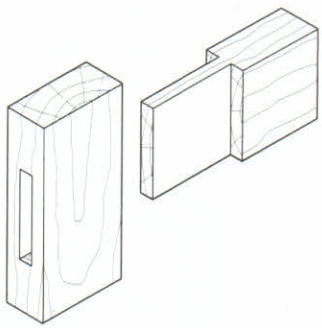
a. Use: _____

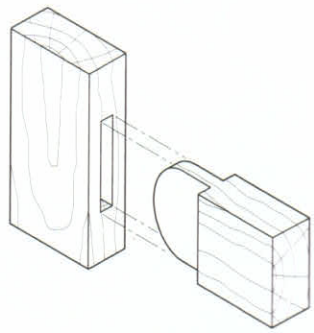
b. Use: _____

c. Use: _____

2. Name the construction joints illustrated below and state a suitable use for each.







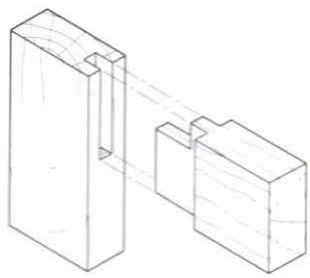
a. _____ b. _____ c. _____

a. Use: _____

b. Use: _____

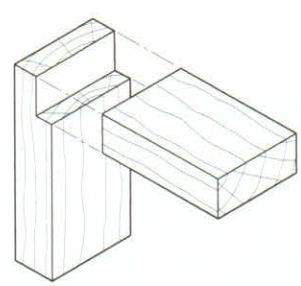
c. Use: _____

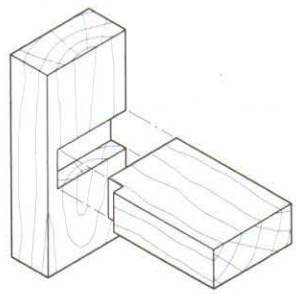
d. Use: _____

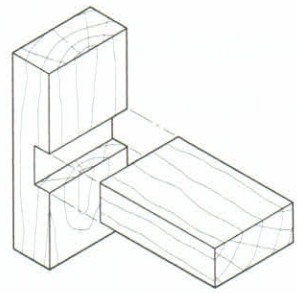


d. _____

3. Name the construction joints illustrated below and state a suitable use for each.







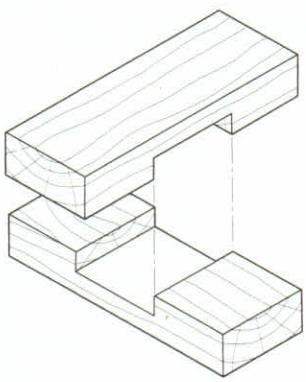
a. _____ b. _____ c. _____

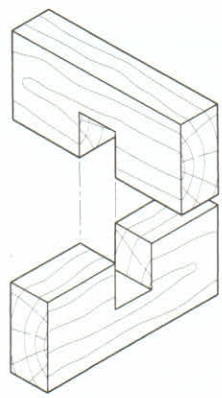
a. Use: _____

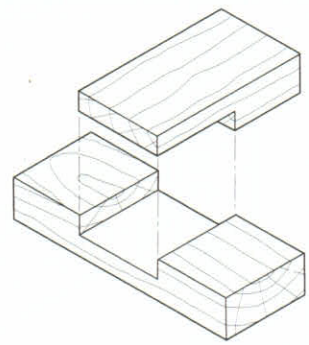
b. Use: _____

c. Use: _____

4. Name the construction joints illustrated below and state a suitable use for each.







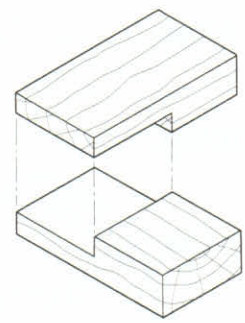
a. _____ b. _____ c. _____

a. Use: _____

b. Use: _____

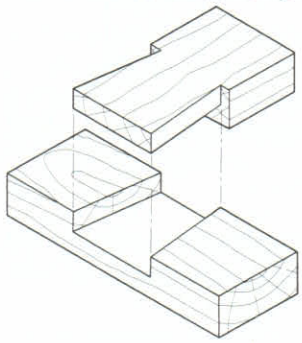
c. Use: _____

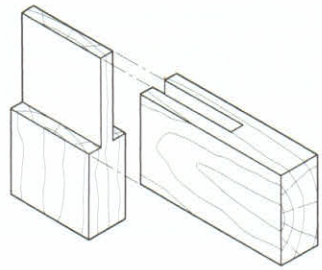
d. Use: _____

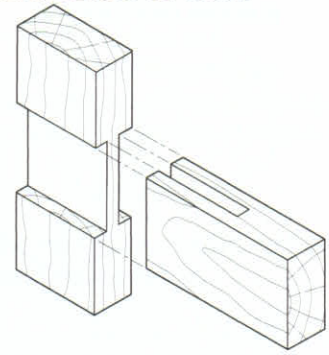


d. _____

5. Name the construction joints illustrated below and state a suitable use for each.







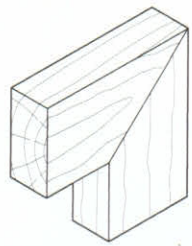
a. ..... b. ..... c. .....

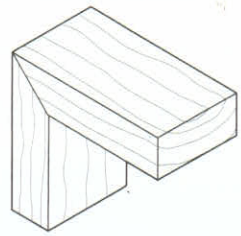
a. Use: .....

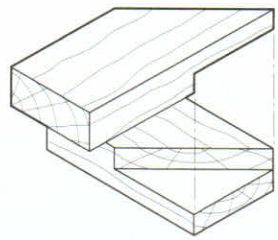
b. Use: .....

c. Use: .....

6. Name the construction joints illustrated below and state a suitable use for each.







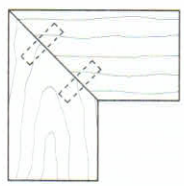
a. ..... b. ..... c. .....

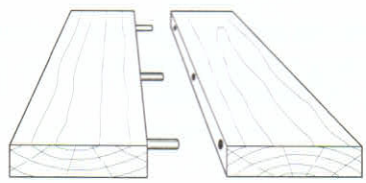
a. Use: .....

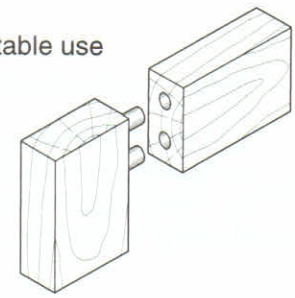
b. Use: .....

c. Use: .....

7. Name the construction joints illustrated below and state a suitable use for each.







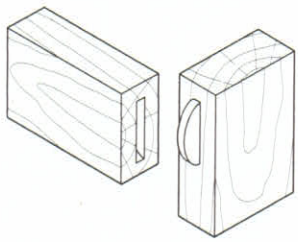
a. ..... b. ..... c. .....

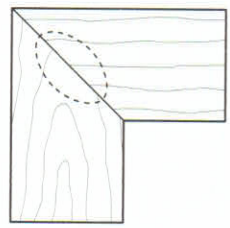
a. Use: .....

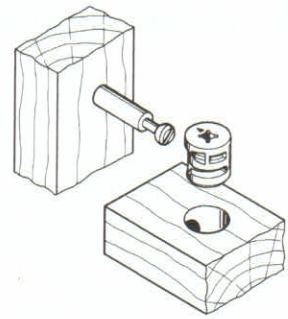
b. Use: .....

c. Use: .....

8. Name the construction joints illustrated below and state a suitable use for each.







a. _____ b. _____ c. _____

a. Use: _____

_____

b. Use: _____

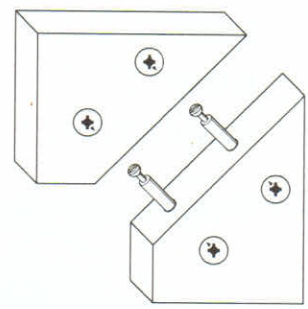
_____

c. Use: _____

_____

d. Use: _____

_____



d. _____

Basic Assembly

1. Briefly explain why the choice of adhesive is important in assembly planning.

_____

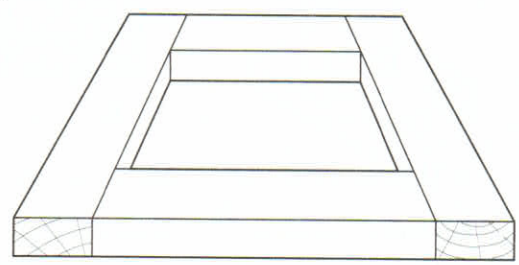
_____

_____

2. Assembly planning could involve:

a. Determining fixing methods before assembly is commenced.
b. Making sure all necessary consumables, tools and equipment are on hand.
c. Preparing and setting up the work area.
d. All of the above.

3. The illustration on the right is a perspective drawing of an assembled frame. Draw face and edge marks on the frame in the usual position. (Face marks up, edge marks in).



4. Which of the following does not apply to the correct use of face and edge marks?

a. Face and edge marks are placed on the timber after joints are marked out.
b. Marking tools are used with their stocks against the face sides and face edges.
c. Working from face sides and edges ensures that joints are flush on those surfaces.
d. Power tools and machines are also used with reference to face and edge marks in joint construction.

5. Briefly explain why two coats of glue should be applied to the end grain of solid timber and the edges of manufactured boards when projects are being assembled.

6. When would adhesives such as formaldehydes be applied with the resin on one surface and the catalyst on the other?

7. PVA glue has a working time of about thirty minutes.

a. True b. False

8. Which of the following is not likely to be used in assembly operations?

a. Electric drill b. Screwdriver c. Hammer
d. Squaring rod e. Router f. Try square

9. Why should cramping equipment be prepared in readiness for assembly operations?

10. Complete the following sentence:

During assembly operations pressure should be applied _____ and _____ on all cramps to avoid unnecessary _____ in the frame and on the joints.

11. Which of the following best represents minimum cramping time for PVA glue?

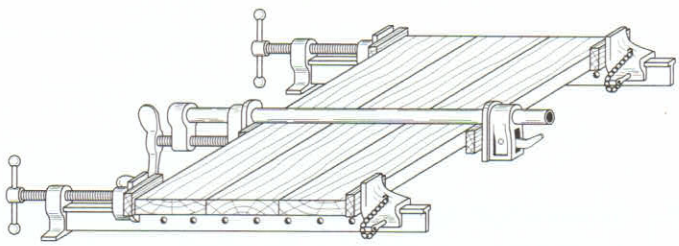
a. 1 hour b. 3 hours
c. 8 hours d. 12 hours

12. Briefly explain why poorly fitted joints should not be placed under excessive pressure to improve the fit.

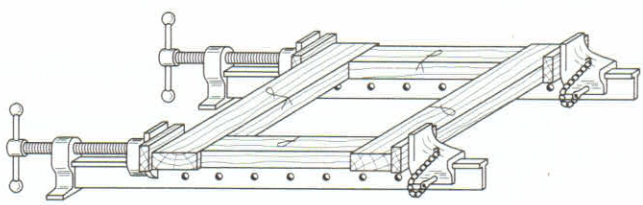
13. Nailed or screwed joints never need cramping during assembly.

a. True b. False

14. The illustration on the right shows a solid timber table top assembled using three cramps. Briefly explain why the centre cramp is placed on the upper side of the boards while the outer cramps are underneath.

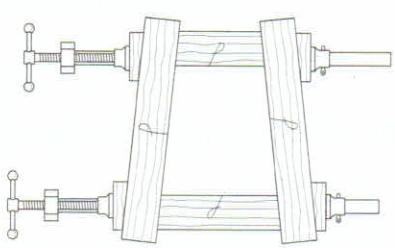


15. The illustration on the right shows a frame that has been glued and cramped. Briefly explain why blocks of waste wood are used in the cramping operation.



16. The illustration on the right shows a tapered frame that has been glued and assembled using two cramps and tapered blocks. Which of the following statements may not be consistent with good assembly practice?

a. Tapered blocks protect the edges of the frame.
b. Tapered blocks distribute the cramp pressure evenly.
c. Tapered blocks can be temporarily glued to the frame to prevent slipping.
d. Tapered blocks should be temporarily nailed to the frame to prevent slipping.

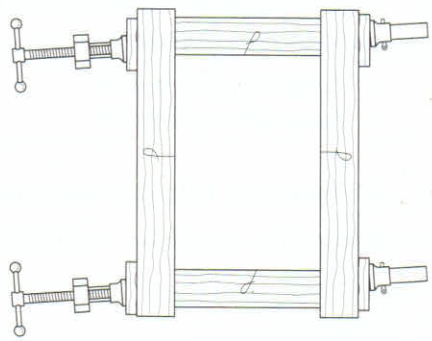


17. How are large rectangular frames and carcases checked for square?

18. A cramped frame can sometimes be squared by sharply tapping the waste material on a corner of the frame.

a. True b. False

19. The illustration on the right shows a frame that has been glued and cramped. Briefly explain why the cramps are not positioned parallel to the rails.



20. Which of the following is the trade term which refers to a board whose faces are twisted?

a. In twist
b. In spiral
c. In wind
d. In bow

21. Which of the following statements correctly refers to timber whose faces are twisted?

a. Internal stresses in the structure of wood can cause boards to twist.
b. Uneven drying during seasoning doesn't cause boards to twist.
c. Twisted timber never stays flat after dressing.
d. Twisted faces are caused by crooked milling of the timber.

22. Briefly describe how frames can generally be kept flat in the assembly process.

23. A frame that is in wind can generally be corrected by twisting it back in the opposite direction before the glue begins to set.

a. True b. False

Time Efficiency

1. Complete the following sentence:

Time efficiency could be broadly described as .....

.....

.....

.....

2. Making preparations that should minimise time wastage during all stages of assembly could best be described as:

a. Assembly procedure
b. Assembly methods
c. Assembly operations
d. Assembly planning

3. Complete the following sentence:

Production assembly methods should be designed to use as little of the available ..... time as possible.

DRAWING

Drawing As A Means Of Communication

1. Complete the following sentence:

A furniture designer must have graphic ..... skills so that detailed ..... can be prepared to accurately convey design and ..... information to workshop personnel.

2. Freehand sketches are often used in furniture design work. Which of the following does not generally apply to the use of freehand sketching.

a. Freehand sketching helps the designer develop design ideas.
b. Freehand sketches are used to communicate preliminary design ideas to clients.
c. Freehand sketching helps the designer to determine overall sizes, shapes, proportions and other design information.
d. Freehand sketches are used to communicate detailed construction information to workshop personnel.

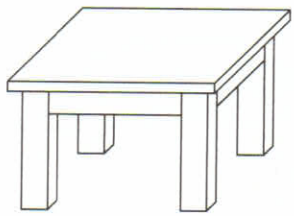
3. List three instances when formal pictorial drawings would be used in preference to freehand sketches.

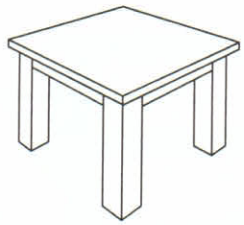
a. .....

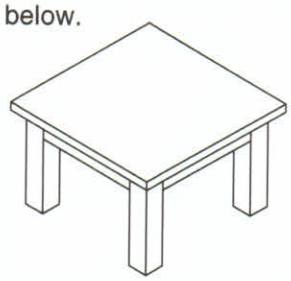
b. .....

c. .....

4. Name the three common types of pictorial drawings illustrated below.







a. ..... b. ..... c. .....

5. Briefly state four reasons why most working drawings are in the form of multi-view orthographic (orthogonal) drawings.

a. .....

.....

b. .....

.....

c. .....

.....

d. .....

.....

6. Give two examples where full size set-outs are used in the furnishing industry.

a. .....

.....

b. .....

.....

7. Complete the table below which lists standard drawing sheets and presentation requirements.

Standard Sheet	**Sheet Size** (mm)	**Margin Width**	**Border Line**	**Sample Line**
	297 x 210	10 mm	0.7 mm	
A3		10 mm		
A2	594 x 420		0.7 mm	
A1	841 x 594	20 mm		
A0	1189 x 841	20 mm	1.4 mm	

8. List five pieces of information that could be included in a basic title block for a working drawing.

a. _____ b. _____

c. _____ d. _____

e. _____

9. Name the line types shown below.

a. _____

b. _____

c. _____

d. _____

e. _____

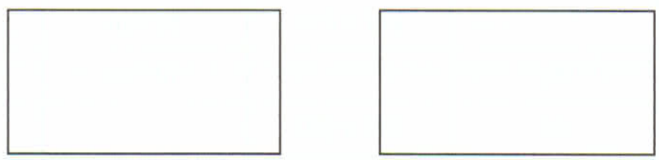
f. _____

10. Complete the table below which shows recommended line thicknesses for standard drawing sheets.

Sheet	Outline	Proj. etc	Hidden	Centre	Broken	Section	Sample Thickness
A4,A3,A2		0.18		0.18	0.18	0.18/.35	0.18 0.25
A1	0.5		0.25		0.25		0.35 0.5
A0		0.35	0.35	0.35		0.35/.7	0.7

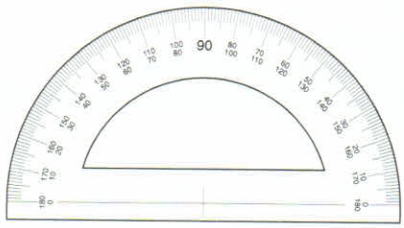
11. Complete the dimension lines for the rectangles below. Show examples of three acceptable methods of dimensioning.

12. Illustrate standard hatching of solid dressed timber and particleboard using the rectangles on the right.

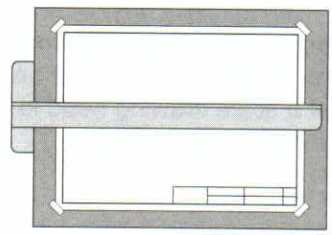


Timber Particleboard

13. Identify the items of drawing equipment illustrated below.

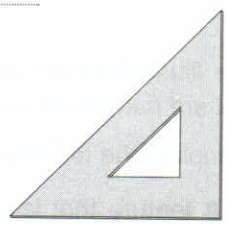


a. .....

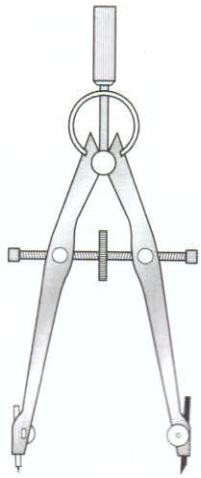


b. .....

c. .....



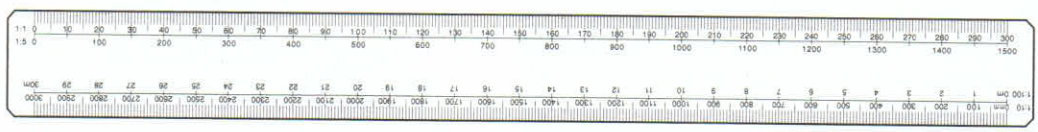
d. .....



e. .....

f. .....

g. .....



h. .....

i. .....

Scales

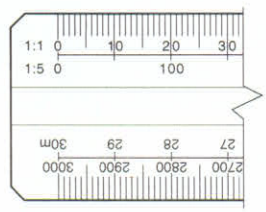
1. Why would a designer need to scale working drawings?

a. The object to be drawn is larger than the paper size.
b. The object to be drawn is too small to be clearly represented full size.
c. Some details of a scale drawing need to be drawn larger to show all necessary information clearly and accurately.
d. All of the above.

2. Which of the following scales is a reduction ratio?

a. 1:2 b. 1:1 c. 2:1 d. 10:1

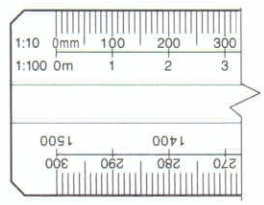
3. The illustrations on the right show parts of scale rules that are numbered for scales of 1:1, 1:5, 1:10 and 1:100.



Complete the following sentences:

a. A feature that is actually 150mm in length would be represented on a 1:5 drawing by a measurement of

..... mm.



b. A feature that is actually 220mm in length would be represented on a 1:10 drawing by a measurement of

..... mm.

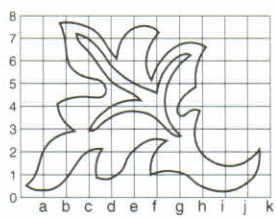
c. A feature that is actually 2800mm in length would be represented on a 1:100 drawing by a measurement of

..... mm.

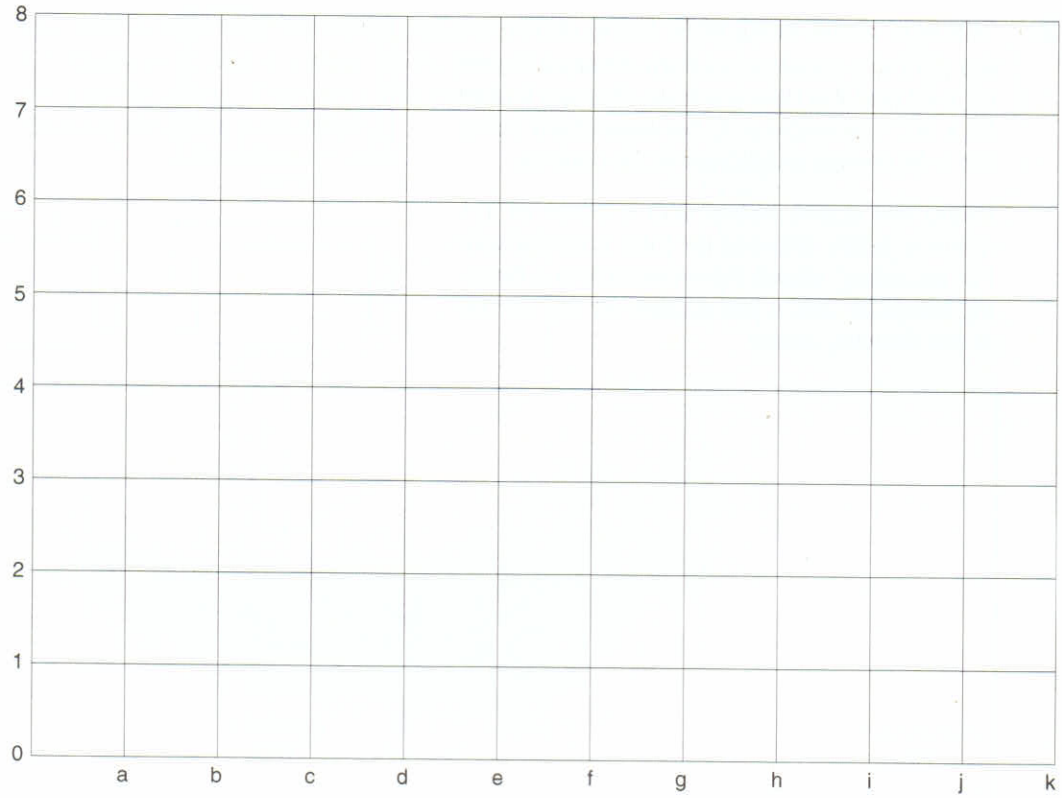
4. An antique cabinet pediment is to be reproduced from the drawing shown on the right and patterns are required to make the carved shapes.

The drawing has been enlarged on a photocopier and an accurate tracing of one of the shapes has been made.

As shown on the right, a grid has been drawn over the traced shape to enable it to be scaled up to the full size required.



Use the scaled up grid on the next page to produce the full size pattern required.

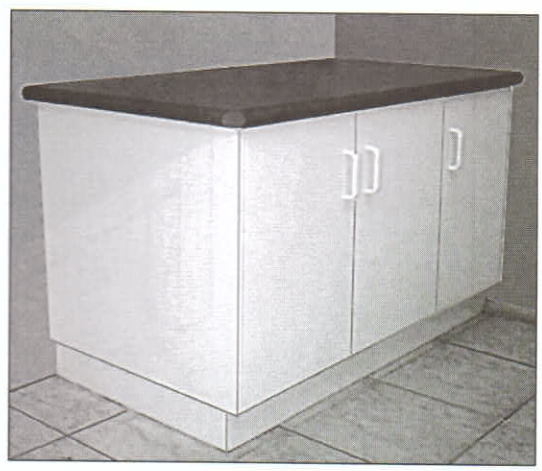


Working Drawings

1. The photograph on the right shows a cupboard made from medium density fibreboard with a plastic laminate top. Using a scale of 1:10 draw a front view, top view and sectional side view of the cupboard on an A3 sheet given the following specifications:

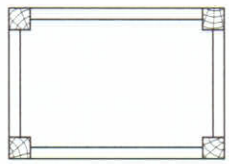
Overall size 1200 x 800 x 600 high.
Top 30mm thick with 30mm overhang.
Base 100mm high with 20mm step under.
MDF 20mm thick (except for top).
Shelf centred in each compartment.

The drawing should be subtitled and main dimensions shown. Construction details should be determined after class discussion with your instructor. Standard drawing presentation requirements for line types, line thickness, borders, name blocks, hatching and dimensions should be used.



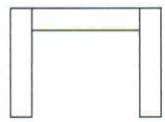
2. The legs of the small table frame shown on the right are constructed from dressed timber 62 x 62 and the rails are from dressed timber 62 x 30. The frame is to be assembled using Ø8 x 48 dowels positioned at 36 centres.

Using the space below and a scale of 1:1 make a detail drawing for joint construction. For accuracy, attach the workbook to a drawing board or use a set square off the border of the drawing space.



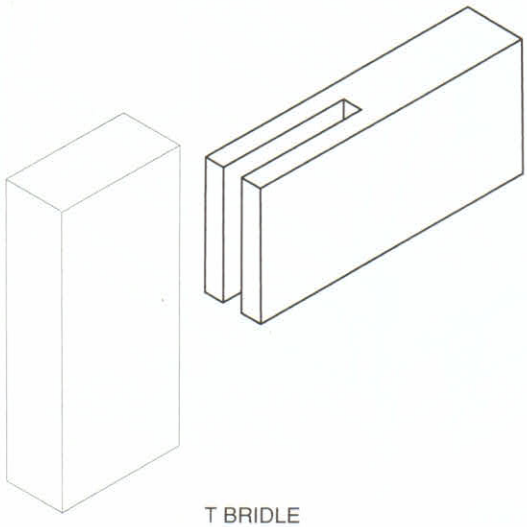
TOP VIEW

FRONT VIEW

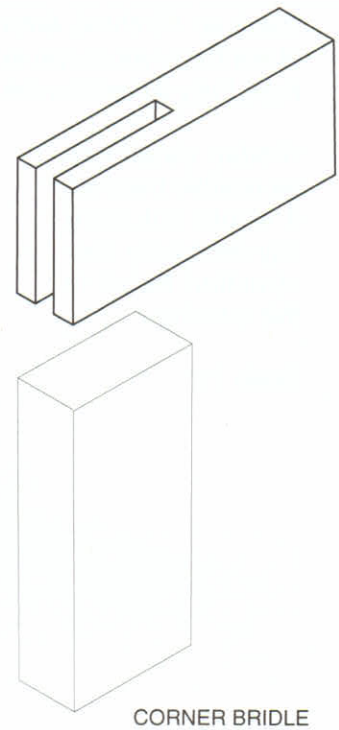


SIDE VIEW

3. Incomplete exploded isometric views of a T bridle joint and a corner bridle joint are shown below. Complete the views showing all visible joint details.

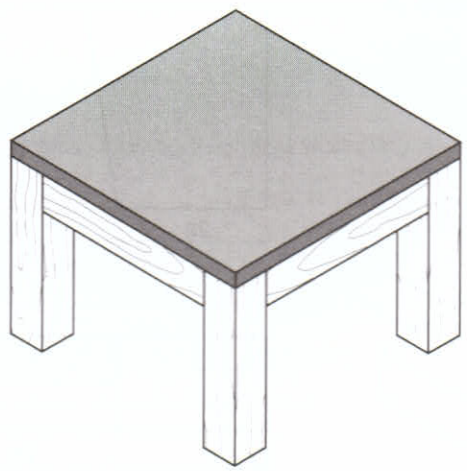


T BRIDLE JOINT



CORNER BRIDLE JOINT

4. The isometric view below shows a small table 600 x 600 x 450 high. Legs are 75 x 75 and rails are 75 in width. The top is 35 thick. Using an A3 sheet, reproduce this isometric view to a scale of 1:5.

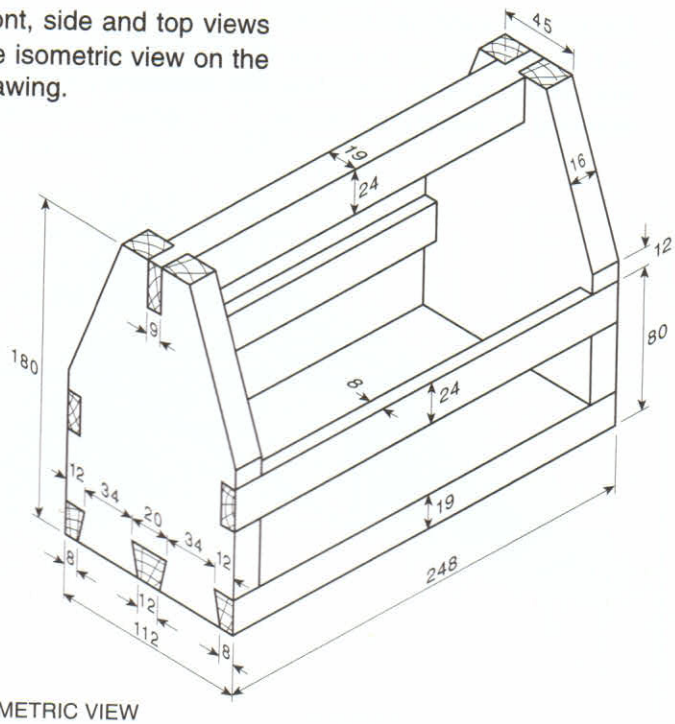


ISOMETRIC VIEW

5. Using an A3 sheet, draw front, side and top views of the Carry-All shown in the isometric view on the right. Fully dimension the drawing.

Hidden detail can be omitted because it would not show any necessary construction detail in this drawing.

Scale 1:2

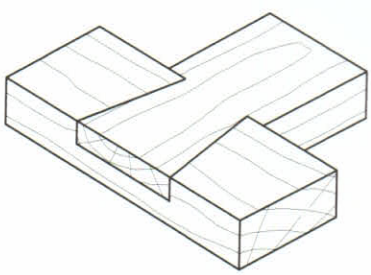


ISOMETRIC VIEW

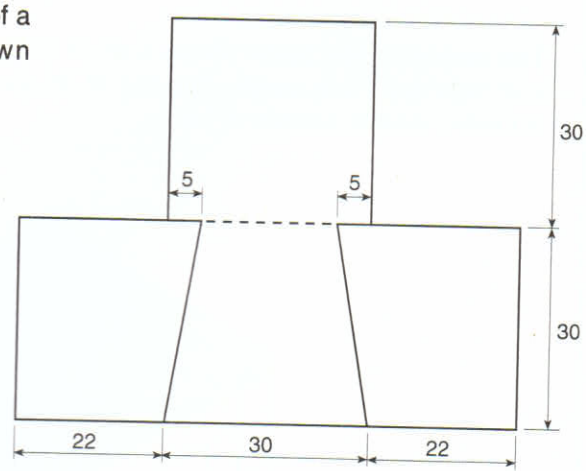
6. The front, top and isometric views of a dovetail halving joint are shown below.

Using the space provided on the next page, draw an exploded isometric view in line for assembly.

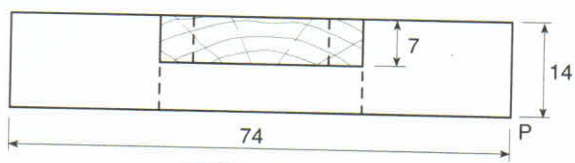
Scale1:1



ISOMETRIC VIEW



TOP VIEW



FRONT VIEW

6. Continued

Freehand Sketching

1. Briefly state four advantages of using freehand sketching as a design tool.

a. .....

.....

b. .....

.....

c. .....

.....

d. .....

.....

2. Draw a freehand pictorial sketch of a single dovetail joint. Refer to the isometric view on page 1 of this workbook as a guide.

3. Working drawings for your next workshop project could now be attempted in consultation with your instructor. Preparatory sketches which record necessary design and construction information should be made prior to commencing the working drawings.

Standard drawing presentation requirements for line types, line thickness, borders, name blocks, hatching, dimensions and scales should be used.

4. In the space provided below, draw a freehand sketch of a construction joint of your choice, presented as an exploded isometric view.

Full Size Set-outs

1. List two factors which illustrate the importance of full size set-outs in relation to the accuracy of construction.

a. .....

.....

b. .....

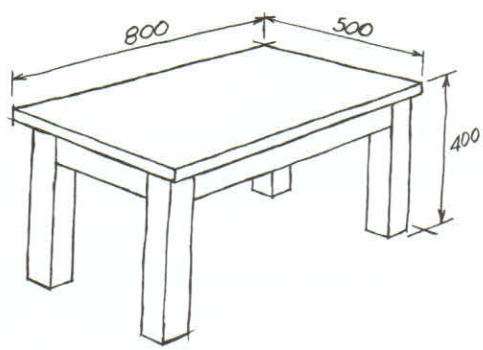
.....

2. Complete either of the following:

a. A full size set-out of your next workshop project.

b. A full size set-out of the table shown in the freehand sketch on the right, to the following specifications:

Legs 68 x 68 teak, rails 68 x 31 teak, top 25 teak veneered particleboard veneered on the edges with 20 over-hang, Ø8 dowel joints at 44 centres.



WORKPLACE ENVIRONMENT

Management and Control

1. List the five general areas of managerial activity that can be described as critical in any workplace environment.

a. ..... b. ..... c. .....

d. ..... e. .....

2. Name the areas of managerial activity that are briefly described below.

a. Creating and maintaining a system through which the work of the company is coordinated.

.....

b. Setting standards, monitoring the achievement of those standards and taking corrective action when standards are not being met.

.....

c. Motivating subordinates to cooperate and willingly work toward achieving the company's objectives.

.....

d. Setting general objectives and the direction of the company as well as establishing priorities and operational goals.

.....

e. Making decisions about all aspects of human resource management in the company.

.....

3. List the three levels of management that would usually exist in a medium to large furniture manufacturing business.

a. .....

b. .....

c. .....

4. Name the management levels whose responsibilities are briefly described below.

a. Planning, organising and supervising a work group's activities on a day to day basis.

.....

b. Overall responsibility for the organisation and long term planning.

.....

Employer - Employee Relations

1. At the present time, most Australians work under Awards, Enterprise Bargaining Agreements or Australian Workplace Agreements.

   a. True b. False

2. List four work related needs of employees.

   a. _____

   b. _____

   c. _____

   d. _____

3. List three business related needs of employers.

   a. _____

   b. _____

   c. _____

Employer Associations and Trade Unions

1. Most large industries do not have employer associations which work to safeguard the interests of industry members.

   a. True b. False

2. Which of the following statements does not apply to the FIAA (Furnishing Industry Association Of Australia)?

   a. Represents businesses in all sectors of the furnishing industry.
   b. Sets the level of wages paid to employees in the furnishing industry.
   c. Provides services to meet the needs of its members.
   d. Has offices in all states of Australia.

3. Give three examples of services or activities of the FIAA which might help members to market their products.

   a. _____

   b. _____

   c. _____

4. Give three examples of services or activities of the FIAA which relate to the working conditions or wages of employees in the industry.

   a. _____

   b. _____

   c. _____

5. Briefly state the reasons why employees elect to join trade unions.

6. Acting as a group, rather than individuals, trade unions negotiate wages and working conditions with employers. This process is called:

a. Collective bartering
b. Group bartering
c. Collective bargaining
d. Group bargaining

7. Trade union officers are elected by the members.

a. True b. False

8. List five services that trade unions provide for members which relate directly to financial matters.

a.

b.

c.

d.

e.

9. Trade unions are not generally concerned with protecting members from discrimination or harassment and promoting equal opportunities for men and women.

a. True b. False

10. Workers in the furnishing industry who join a union usually become members of the:

a. Australian Council Of Trade Unions
b. Australian Workers Union
c. Federated Furnishing Trades Society Of Australasia
d. Construction, Forestry, Mining And Energy Union

11. What is the function of a union representative at the shop floor level?

Time Management

1. How would machines be positioned in an efficient plant layout?

.....

.....

2. Briefly state four advantages or benefits of effective production planning.

a. .....

b. .....

c. .....

d. .....

3. Complete the following sentence:

Product cost can be minimised by efficient ..... and using production methods and procedures that are .....

4. List two benefits that the manufacturer receives by reducing costs through efficient production methods.

a. .....

b. .....

5. List two benefits that the customer should receive as a result of the manufacturer's efficient production methods and reduced production costs.

a. .....

b. .....

6. The operator of a two hole horizontal borer has three jobs scheduled. The average machine setup time for one boring operation is 8 minutes.

Job A - Joints have Ø8 dowels at 45mm centres.
Job B - Joints have Ø10 dowels at 50mm centres.
Job C - Joints have Ø8 dowels at 45mm centres and Ø10 dowels at 50mm centres.

Describing boring operations as, for example *A-Ø8*, list the most efficient and least efficient production sequences and state the total setup time for each.

a. Most efficient production sequence: ....., ..., ..., ...

Total setup time: .....

b. Least efficient production sequence: ....., ..., ..., ...

Total setup time: .....