



**Turnbull High School  
Technical Department**

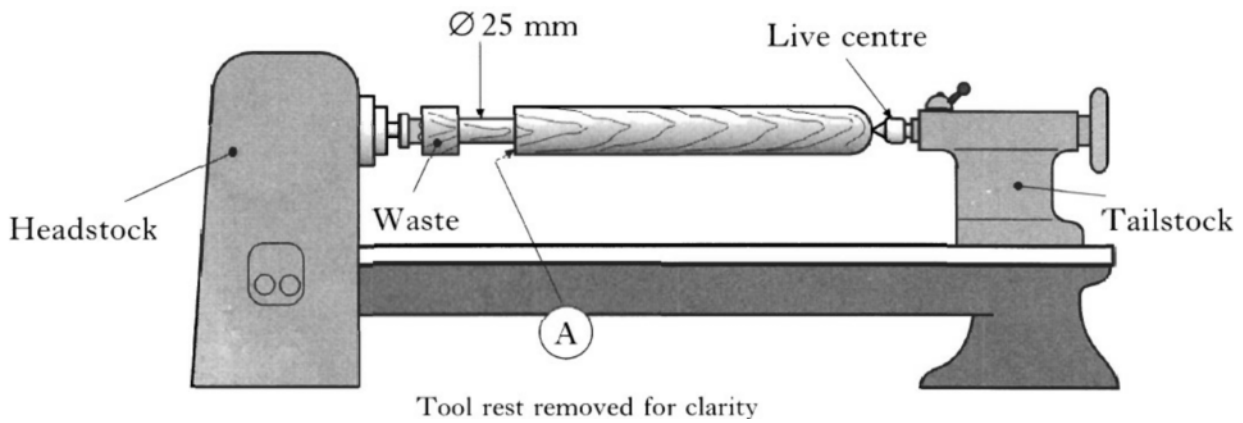
# **National 5 Practical Woodwork Homework Booklet 3**

**Name:**

**Class:**

**Teacher:**

1. The legs of a chair are turned on the wood lathe.



(a) (i) **Sketch and name** the tool used to produce the square shoulder shown at A.

Name of tool: \_\_\_\_\_

1

(ii) **Sketch and name** the tool used to check the diameter at A.

Name of tool: \_\_\_\_\_

1

2. A reproduction of a Mackintosh style chair is shown.



(a) Part of the chair back is shown.



Describe in detail how a drill and coping saw could be used to remove the internal shape. Your answer should include details of how to adjust the coping saw. *You may use sketches to illustrate your answer.*

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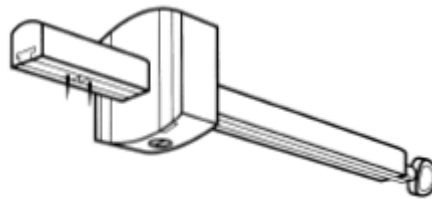
- (b) The tools shown were used during the manufacture of the chair. For **each** tool, describe **two** possible adjustments.



1. \_\_\_\_\_

2. \_\_\_\_\_

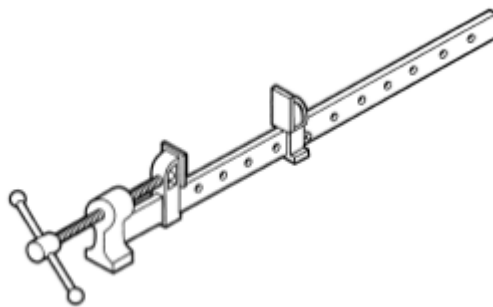
2



1. \_\_\_\_\_

2. \_\_\_\_\_

2



1. \_\_\_\_\_

2. \_\_\_\_\_

2

3. A woodwork lathe was used to turn the legs and rails of the stool shown .



(a) The legs and rails are different lengths. Which part of the lathe needs to be moved to allow different lengths of legs and rails.

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1

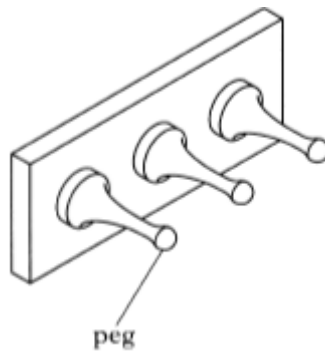
(b) Explain why the wood turning tools have long handles.

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1

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4. A kitchen rack with three turned pegs is shown below.



(a) Name a suitable hardwood for the pegs.

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1

(b) What could be done to ensure all three pegs are identical?

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1

(c) A gouge was used to produce the curves on the pegs . Sketch the blade of this tool.

1

(d) State three reasons for applying a finish to the rack.

1. \_\_\_\_\_

2. \_\_\_\_\_

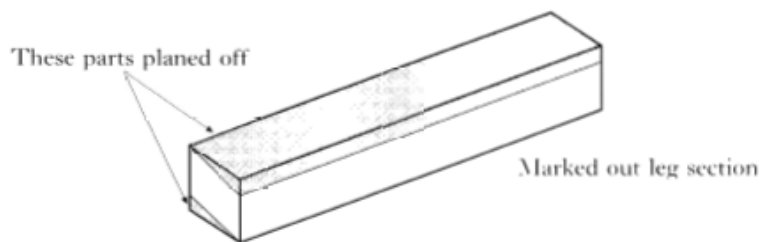
3. \_\_\_\_\_

3

5. An outdoor furniture set is shown below.



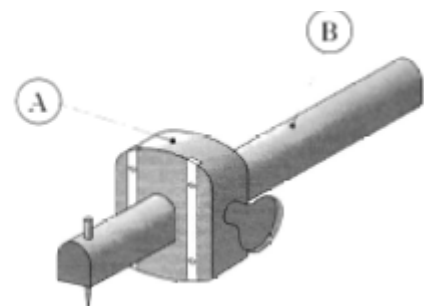
(a) Each leg is made from square section elm which has been planed at an angle on two of the surfaces as shown below.



The marking gauge shown below was used to scribe a line parallel to an edge. Name part A and B of the marking gauge.

Part A \_\_\_\_\_

Part B \_\_\_\_\_



2

(b) Describe how the marking gauge can be set to 8mm. You may use a sketch to illustrate your answer.

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2

(c) (i) Name a type of plane that can be used to remove the waste material from the leg.

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1

(ii) State how the plane can be adjusted to allow a suitable depth of cut.

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1

(d) The finishing process involves wetting the elm and using different grades of glass paper when dry. Explain the purpose of wetting the elm.

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1

1. A children's character chair is shown below.



(a) MDF was chosen for the manufacture of the chair over hardboard. State one reason for this choice.

\_\_\_\_\_

1

(b) Name two machines that could be used to cut the shape of the chair back.

1. \_\_\_\_\_ 2. \_\_\_\_\_

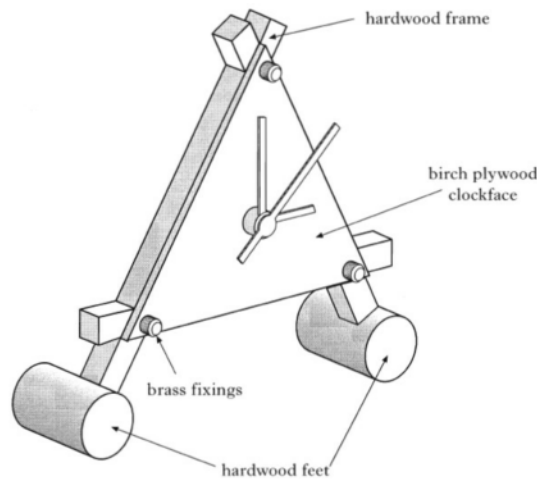
2

(c) Different colours of gloss paint were used for the chair. State a method of preventing the colours from merging.

\_\_\_\_\_

1

2. A design for a desktop clock is shown below.



(a) The clock face is to be coloured with a water based wood stain. List **three** stages of preparation necessary to provide the best possible surface finish before the stain is applied.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

3



- (b) Describe how you would accurately locate the centre of the clock face. Use the sketch opposite to illustrate your answer.

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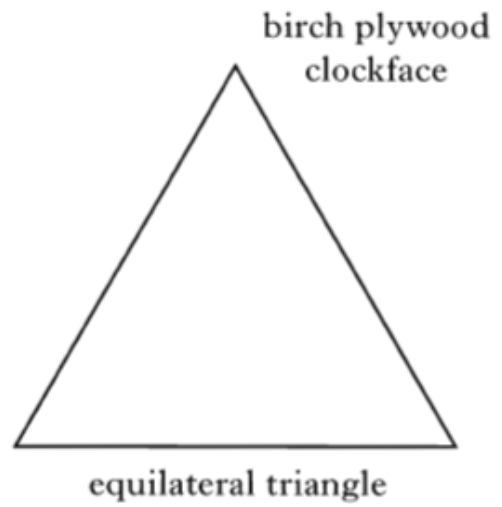
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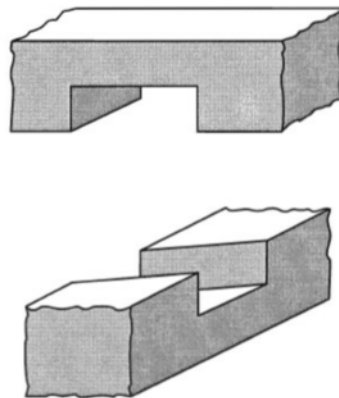


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1

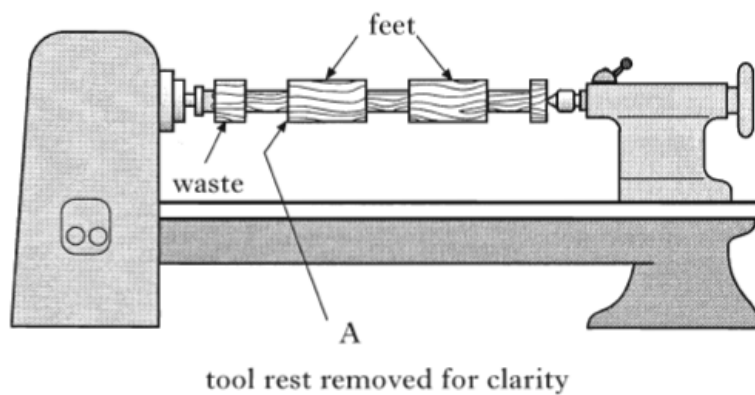
- (c) The sketch below shows the joint used to construct the frame.



State the name of the joint. \_\_\_\_\_

1

- (d) The feet are turned between centres on a woodwork lathe.

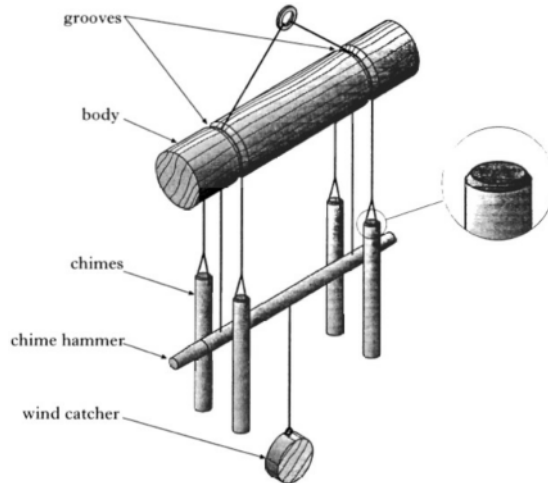


- (i) State the name of the turning tool used to produce the square shoulders shown at A.

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1

3. A set of wind chimes is shown.

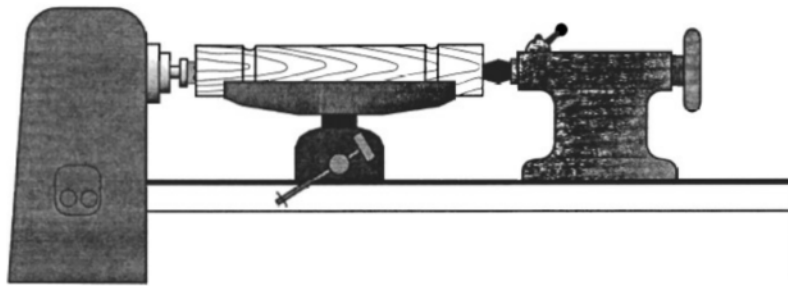


(a) State a functional reason for the grooves on the body.

\_\_\_\_\_

1

(b) (i) The body was turned between centres on the lathe as shown.



State the purpose of the tailstock on the lathe.

\_\_\_\_\_

1

(ii) Two possible profiles for the grooves in the body are shown. State the name of the turning tools used to create each groove.

Profile A \_\_\_\_\_

Profile B \_\_\_\_\_

2

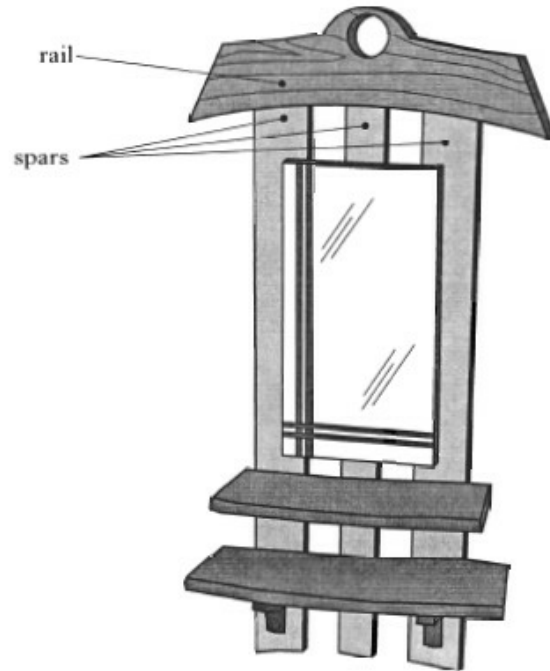
(iii) State the names of the two centres used to hold the wood on the lathe.

1. \_\_\_\_\_

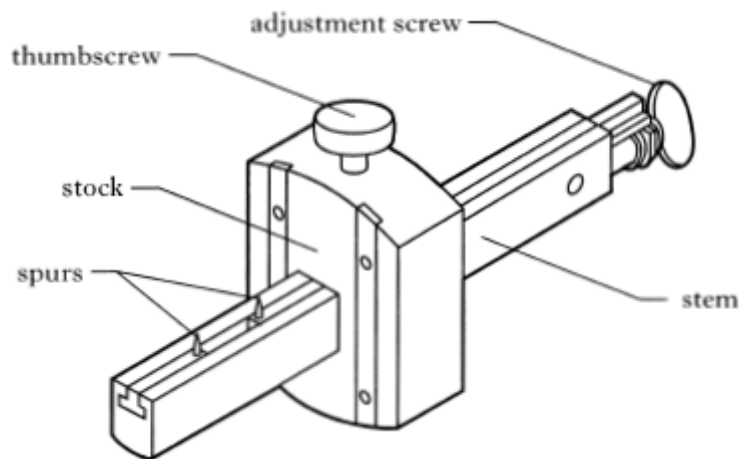
2. \_\_\_\_\_

2

4. A pupil's design for a shelving unit is shown below.



(a) Mortise and tenon joints are used to join the spars to the rails. The tool shown below was used to mark out the joints.



Describe two adjustments that can be made to this tool (*you may use sketches to illustrate your answer*).

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_  
\_\_\_\_\_

(b) State the name of an alternative joint suitable for joining the spars to the rails.

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1

(c) State the name of a suitable drill bit for boring the hole into the rail.

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1

(d) Describe a method of preventing the wood from splitting when boring the hole.

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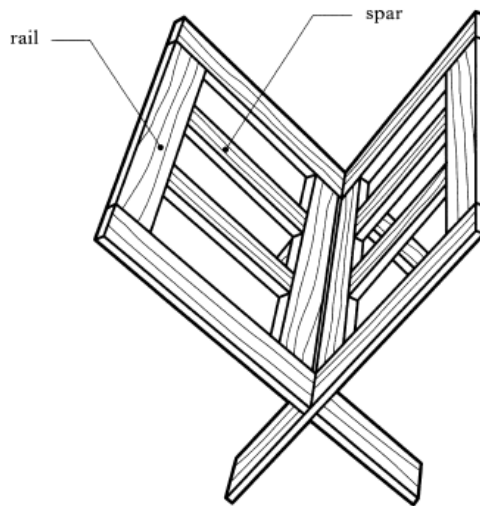
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(e) After varnishing the wood had a rough, gritty finish. State a reason for this.

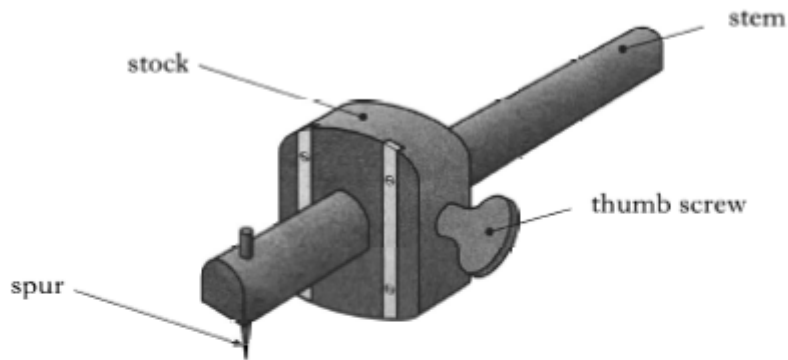
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1

1. A wooden magazine rack is shown below.



(a) Dowel joints were used to join the spars to the rails. The tool shown below was used to mark out the dowel joints.



(i) State the name of this tool.

\_\_\_\_\_

(ii) Describe how this tool can be set to 9mm using a rule. *Sketches may be used to illustrate your answer.*

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- (ii) Describe a method of setting the tool to half the thickness of the material **without the use of a rule**. *Sketches may be used to illustrate your answer.*

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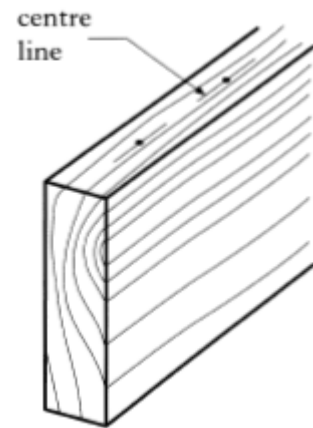
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2

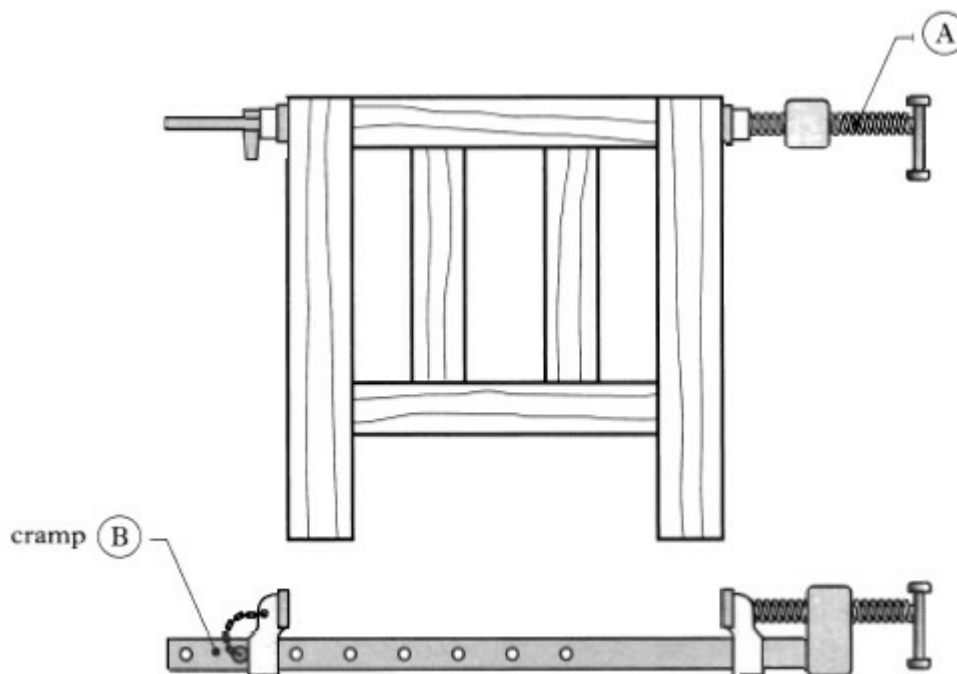
- (b) State the name of a joint, other than a dowel joint, that could be used to join the spars to the rails.

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1

- (c) The frame is partially clamped as shown.

- (i) Indicate with a sketch on the diagram, the best position for cramp B to ensure that the frame is square.



1

- (ii) Describe a method, other than using a try square, of checking that the frame is square.

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1

(d) The finishing process involves wetting the wood after sanding.

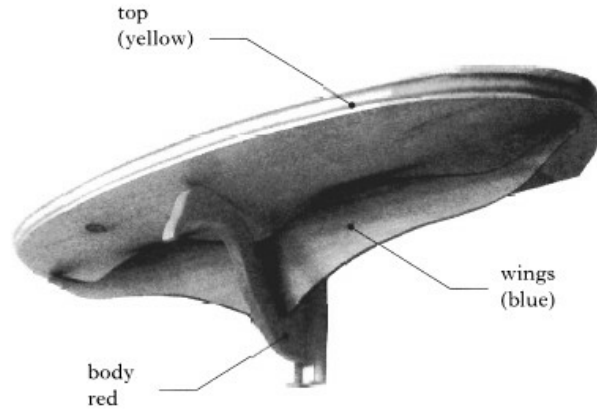
Explain the purpose of wetting the wood.

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1

2. A shelf for a children’s playroom is shown.



(a) The wings were made from 4mm wood grained manufactured board.

(i) State the name of a suitable manufactured board.

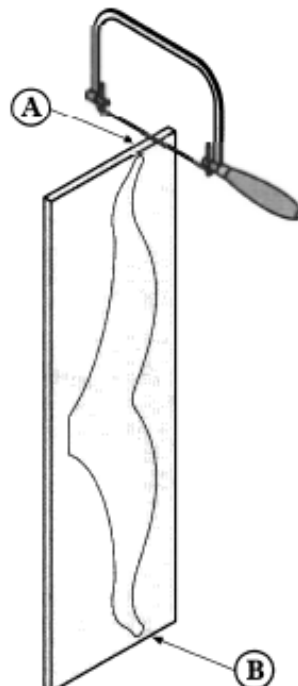
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(ii) Describe one property of the board mentioned above which makes it suitable.

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1

(b) A coping saw was used to cut the wings as shown.



1

- (b) Describe how the coping saw could be adjusted to allow a cut to be made from A to B.  
*You may use sketches to illustrate your answer.*

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2

- (c) State the name of a joint, other than a dowel joint, that could be used to join the wing to the body.

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1

- (d) The top of the shelf is made from pine.

State the name of a coloured finish which would allow the grain of the pine to show through.

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1

- (e) Two different colours are applied to the wings and the body.

Describe a method of preventing the colours from bleeding into one another.

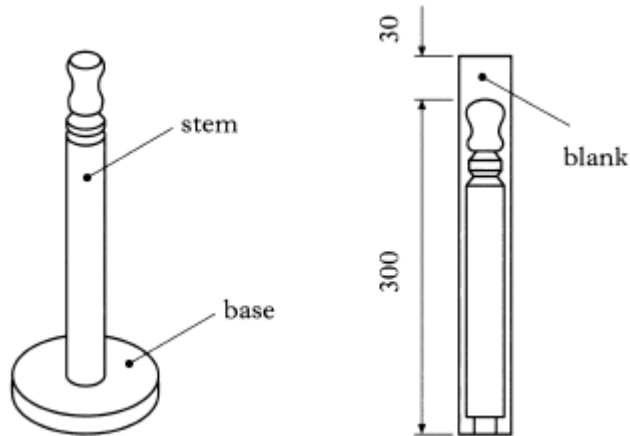
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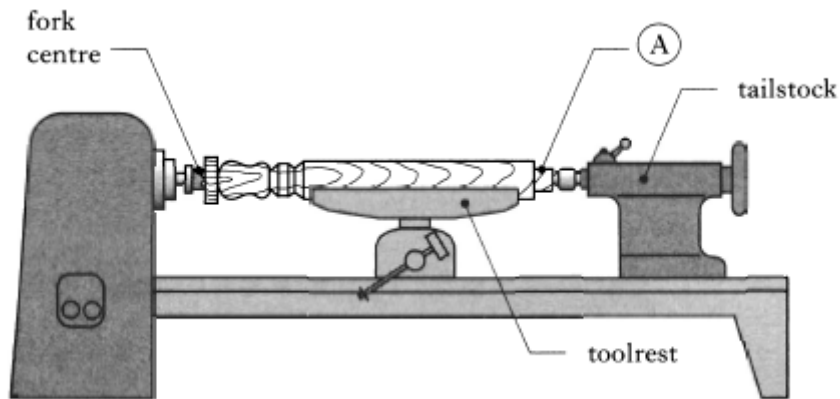
1



3. A wooden kitchen roll holder is shown below.



(a) The 'stem' was turned between centres on a wood lathe as shown below.



(i) The finished stem is 300mm long. State a reason for using a blank which is 330mm long.

\_\_\_\_\_

1

(ii) State the purpose of the 'fork centre'.

\_\_\_\_\_

1

(b) It may be necessary to make different adjustments to the lathe. State a reason for making adjustments to:

The speed of the lathe: \_\_\_\_\_

The position of the tool rest \_\_\_\_\_

3

The position of the tailstock. \_\_\_\_\_

(c) State a reason for reducing the diameter of the stem at A.

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1

(d) State the name of the tool used to cut the shoulder at A.

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1

(e) A finish was applied to the kitchen roll holder.

State two reasons for applying a finish.

1. 

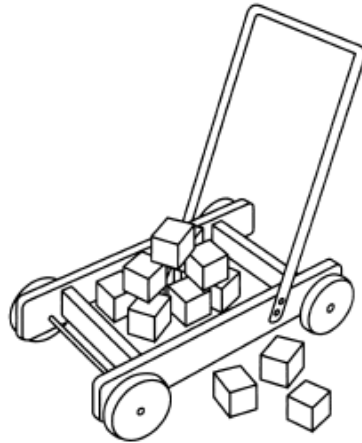
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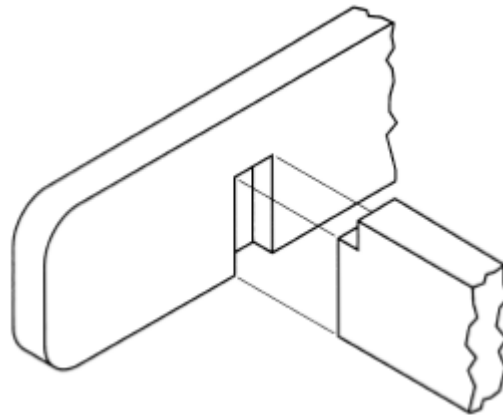
2. 

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1. A child's toy is shown below.



(a) The sketch below shows the joint used to construct the frame.



(i) State the name of this joint.

\_\_\_\_\_

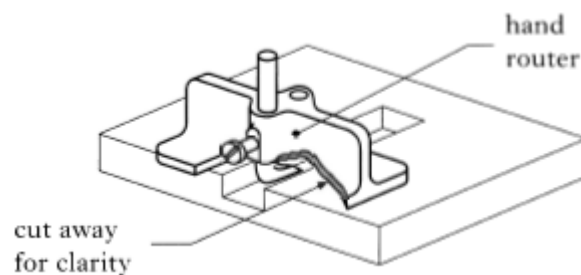
1

(ii) State the name of an alternative joint that could have been used.

\_\_\_\_\_

1

(b) A hand router was used to finish the bottom of the joint.



(i) Describe how you would set this tool to cut a depth of 4mm.

\_\_\_\_\_

\_\_\_\_\_

1

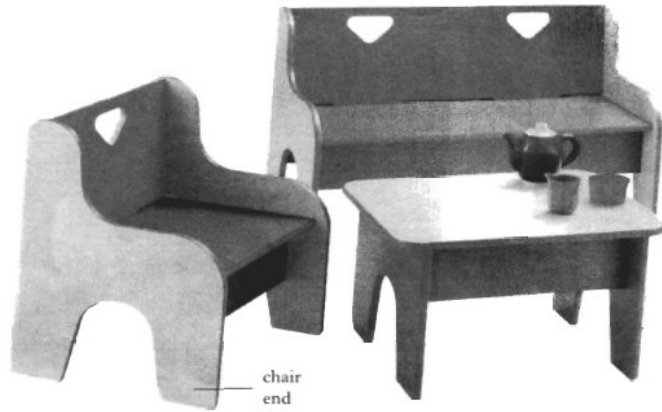
- (ii) State a reason why a hand router, rather than a chisel, would be more suitable for 'finishing' the bottom of the joint.

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- 2. A design for a some children's furniture is shown.



- (a) The material chosen to make the furniture was MDF. State a reason for this choice of material.

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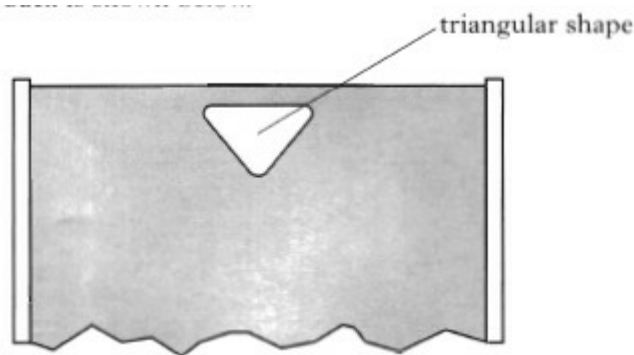
1

- (b) State the name of a **machine** tool that could be used to cut the shape of the chair ends.

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1

- (c) Part of the chair back is shown below.



Describe how the triangular shape could be removed.

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2

(d) The furniture is designed to be manufactured and sold as a *flat-pack* product.

(i) Explain the term *flat-pack*.

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1

(ii) State an advantage of flat-pack furniture to the retailer.

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1

(iii) State a different advantage of flat-pack furniture to the customer.

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1

(e) (i) Gloss paint was chosen rather than water based wood stain to the finish the furniture. State a reason for this choice of finish.

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1

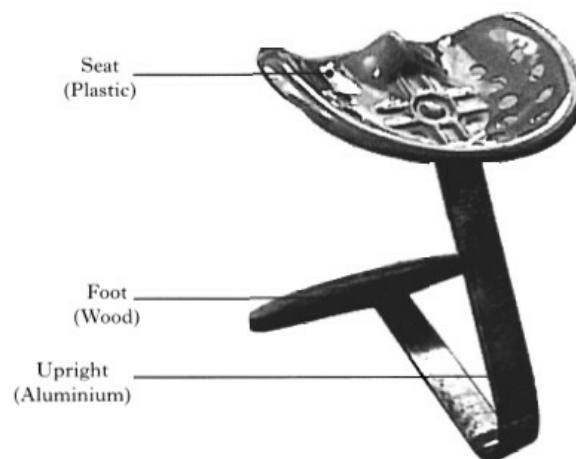
(ii) State a reason why the specification stated that the furniture must be finished in primary colours.

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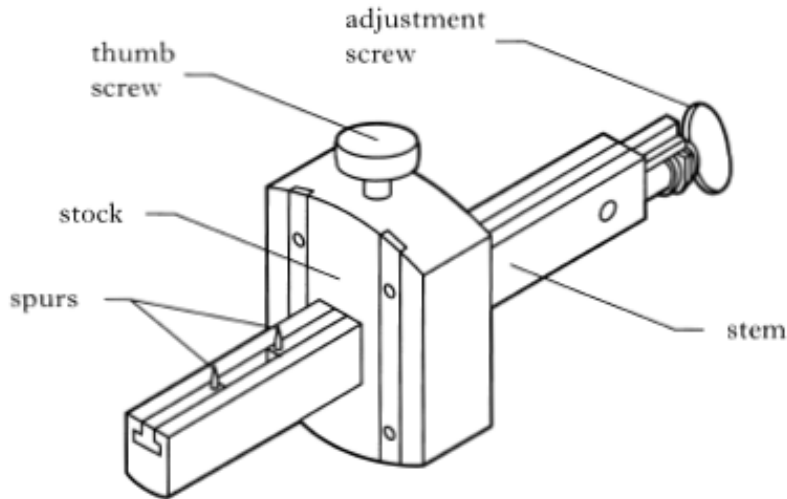
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1

3. A design for a chair is shown below.



(a) The tool below was used during the manufacture of the foot.



Describe how you would set the gauge to mark a slot 12mm wide centrally on a piece of timber 36mm wide. You may write on the sketch above to help you explain your answer.

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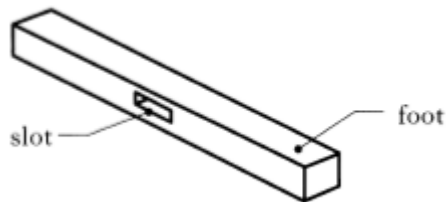
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2

(b) The sketch below shows a stage in the manufacture of the foot.

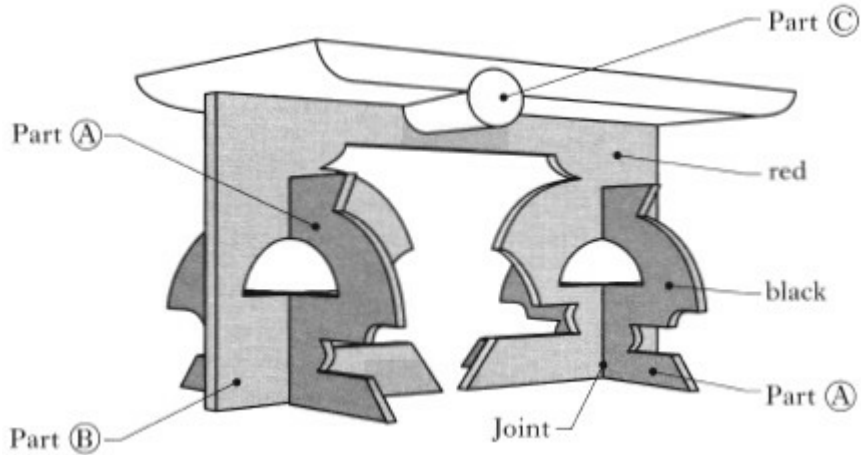


State the name of the **machine** used to accurately cut the rectangular slot in the foot.

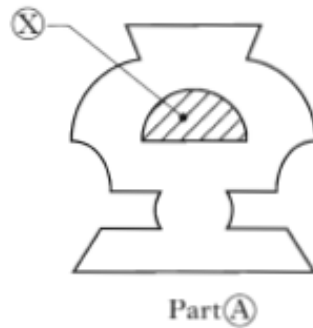
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1

4. A design for a table is shown below.



(a) The shape of Part A is shown below.



(i) State one method of ensuring that Part A on each end of the table is identical.

\_\_\_\_\_

1

(ii) State why a coping saw was unsuitable for cutting out Shape X.

\_\_\_\_\_

\_\_\_\_\_

1

(iii) Describe how the internal shape X could be removed.

\_\_\_\_\_

\_\_\_\_\_

2

(b) Name and sketch a suitable method of joining parts A and B.

Name of jointing method: \_\_\_\_\_

Sketch of jointing method:

1

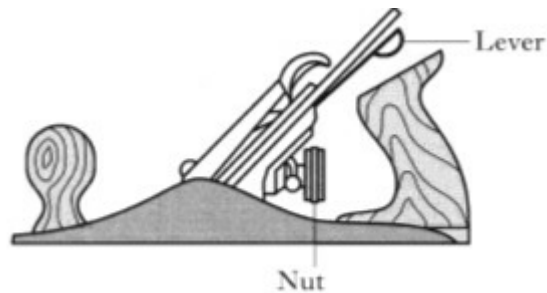
1

(c) Part A was painted a different colour from Part B. State one method of preventing the colours from mixing.

\_\_\_\_\_

1

(d) A plane was used to remove the corners from the blank before turning Part C.



The lever and the nut are both used for adjustment.

State the effect on the blade made by adjusting:

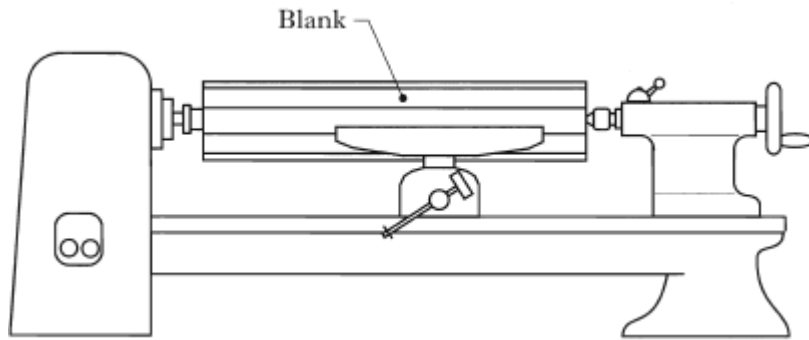
The lever: \_\_\_\_\_

The nut: \_\_\_\_\_

2



(e) Part C was turned between centres on a wood lathe as shown below.



The finished length of Part C was 650mm.

(i) State a reason for using a blank 700mm long.

\_\_\_\_\_

1

The diameter of the blank was 180mm which is relatively large.

(ii) State two adjustments to the wood lathe that may be necessary when turning a blank with this diameter.

1. \_\_\_\_\_

2. \_\_\_\_\_

2

(iii) State the name of the lathe tool used to turn the blank to a cylinder.

\_\_\_\_\_

1

(iv) State the name of the tool used to check the diameter of the blank while it is still on the lathe.

\_\_\_\_\_

1

1. A chair is shown below.



(a) (i) State the name of a suitable softwood for the frame.

\_\_\_\_\_

1

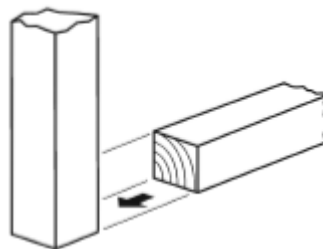
(ii) Environmental issues were considered during the design of the chair. State two environmental issues which may have been considered.

1. \_\_\_\_\_

2. \_\_\_\_\_

2

(b) A butt joint was originally considered for the frame of the chair as shown below.



(i) State a reason why this joint was rejected.

\_\_\_\_\_

1

(ii) State the name of a suitable alternative joint.

\_\_\_\_\_

1

(c) The frame of the chair was assembled without glue and checked for squareness. State the name for this procedure.

\_\_\_\_\_

1

(d) (i) Other than sanding, state two stages in the preparation of the wood prior to applying a finish.

1. \_\_\_\_\_

2. \_\_\_\_\_

2

(ii) State one reason why a clear varnish was chosen as a suitable finish.

\_\_\_\_\_

1

(e) A 'flat-pack' version of the chair is to be produced.  
State a different benefit of flat-pack furniture for each of the following.

(i) The customer \_\_\_\_\_

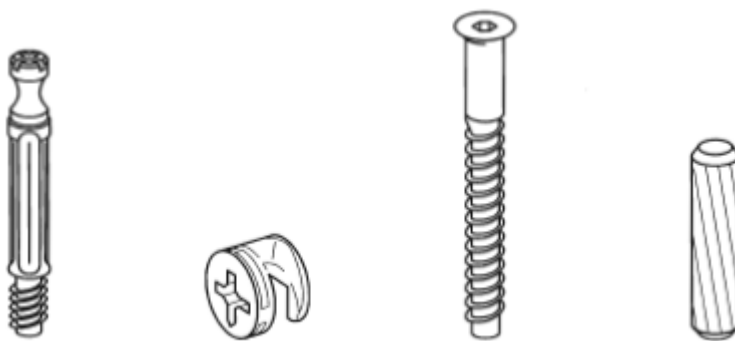
\_\_\_\_\_

2

(ii) The manufacturer \_\_\_\_\_

\_\_\_\_\_

(f) The fittings shown below were used in the manufacture of the flat-pack versions of the chair.

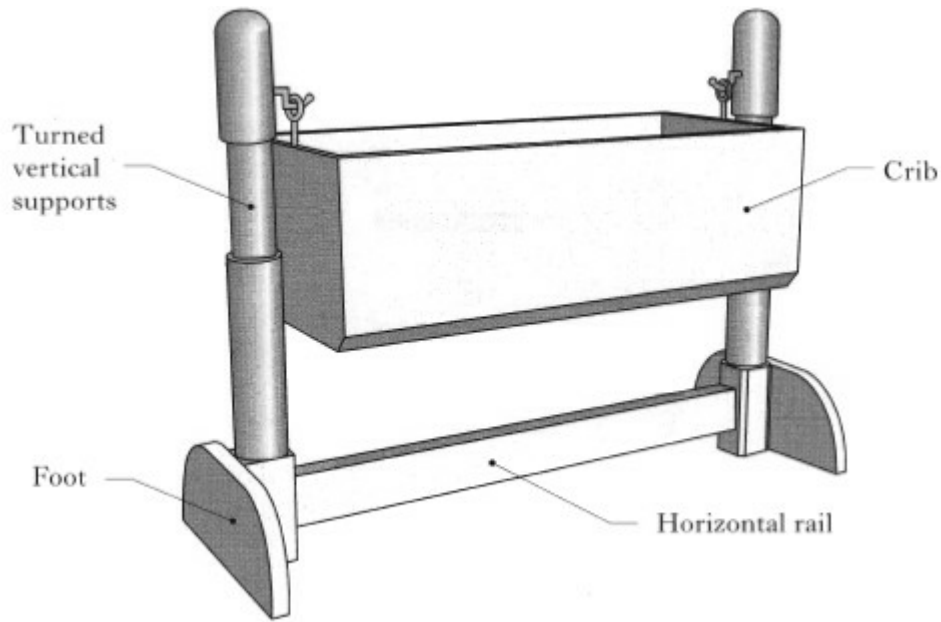


State the collective name for these fittings.

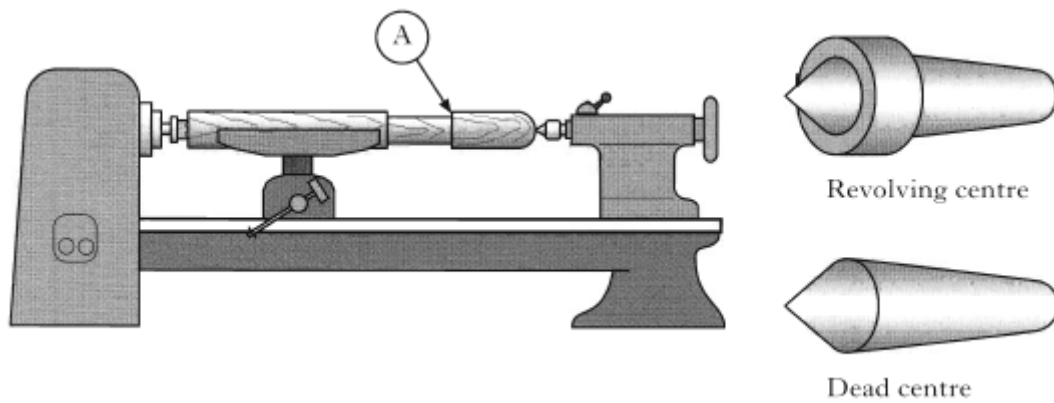
\_\_\_\_\_

1

2. A baby's cot is shown below.



(a) The vertical supports were turned between centres on a woodwork lathe.



(i) State an advantage of using a revolving centre instead of a dead centre.

\_\_\_\_\_

1

(ii) State the name of the turning tool used to produce the square shoulder shown at A.

\_\_\_\_\_

1

(iii) State the name of the tool that could be used to check the diameter of the supports.

\_\_\_\_\_

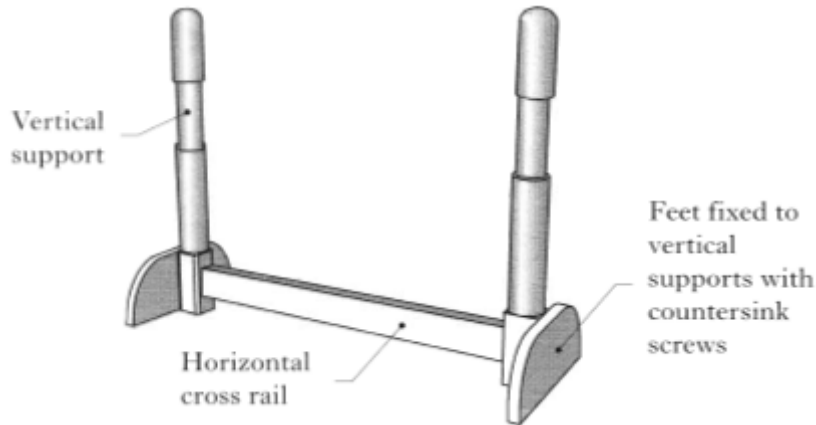
1

(iv) State an adjustment that could be made to the woodwork lathe to improve the surface finish of the supports.

\_\_\_\_\_

1

(b) A sketch of the part assembled cot is shown below.

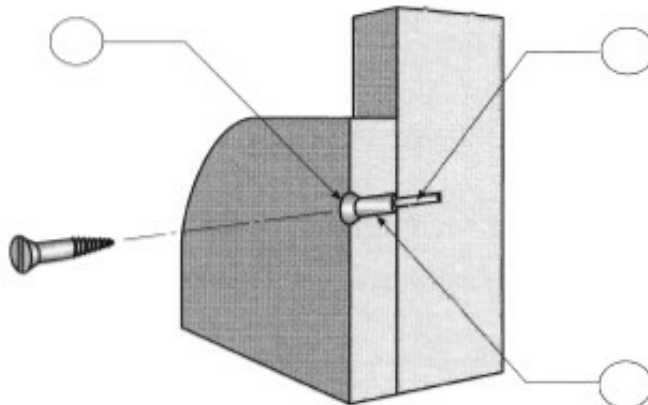


Knock down fittings were used to join the horizontal cross rail to the vertical supports. Explain a benefit of using knock down fittings over a traditional method of joining.

1

(c) The feet of the crib are fixed to vertical supports using countersink screws. On the diagram below, label the following:

- A. Pilot hole      B. Countersink hole      C. Clearance hole



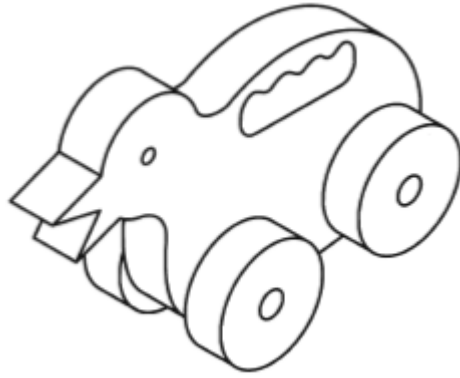
3

(d) The designer chose to make a cot from pine.

State why pine is considered a more environmentally friendly material to use than hardwood.

1

3. A hand held toy is shown.

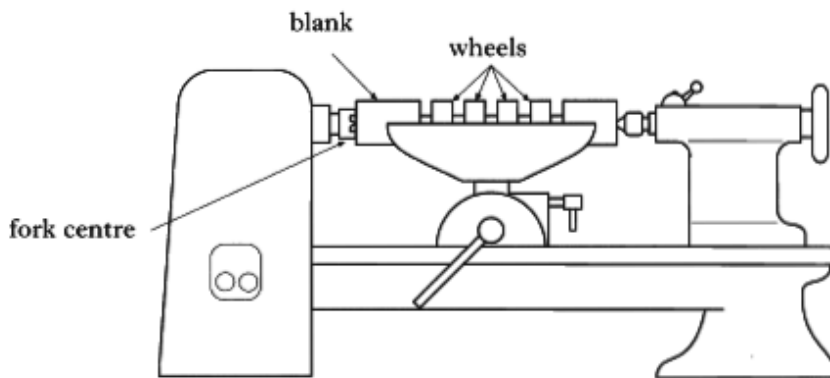


(a) The toy was made from a light coloured, close grained hardwood.

State the name of a suitable hardwood.

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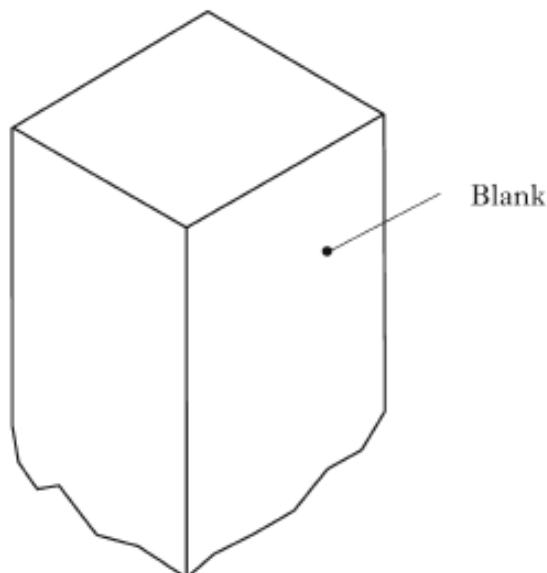
(b) The four wheels were made using the wood lathe as shown.



(i) State a reason why the blank is longer than the combined width of the four wheels.

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(ii) On the sketch show how the end of the blank is prepared for fixing to the fork centre.



1

1

1

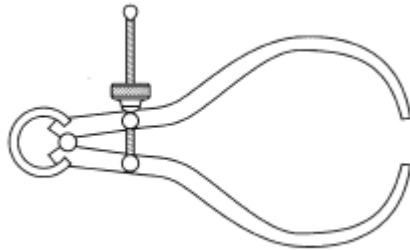
(iii) State the name of **two** turning tools used during the manufacture of the wheels.

Tool 1 \_\_\_\_\_

Tool 2 \_\_\_\_\_

2

(iv) The following tool was used during the manufacture of the wheels.



State the name of this tool and describe its purpose.

Name \_\_\_\_\_

Purpose \_\_\_\_\_

2

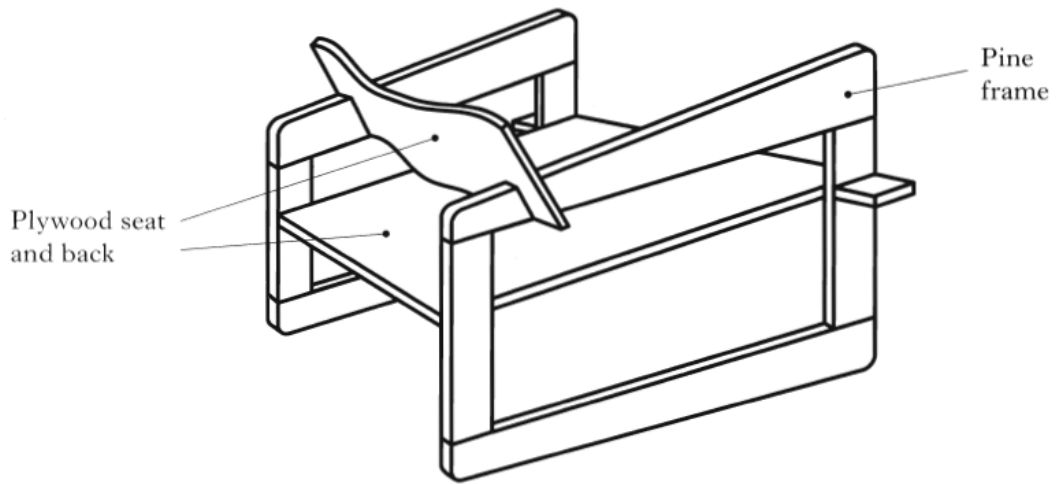
(v) The wheels were sanded before removal from the wood lathe. State **two** adjustments that should be carried out before sanding.

1. \_\_\_\_\_

2. \_\_\_\_\_

2

1. A design for a chair is shown.



- (a) (i) Pine and hardwoods were considered for the frame of the chair. Explain why the use of pine is considered more environmentally friendly than the use of hardwood.

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1

- (ii) Plywood was used for the seat and the back of the chair.

Describe the constructional feature that gives plywood its strength.

*Sketches may be used to illustrate your answer.*

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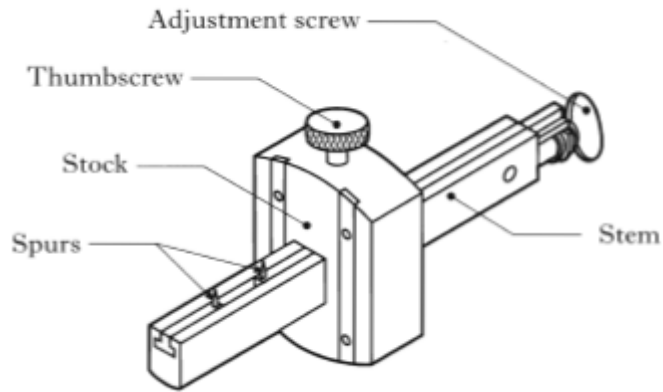
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1



(b) The tool shown was used in the manufacture of the chair.



State the name of the tool.

\_\_\_\_\_

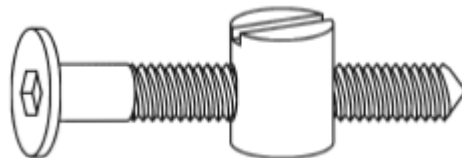
1

(ii) Describe **two** adjustments that could be made to this tool.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

2

(c) The fixing shown below was used during the manufacture of the chair.

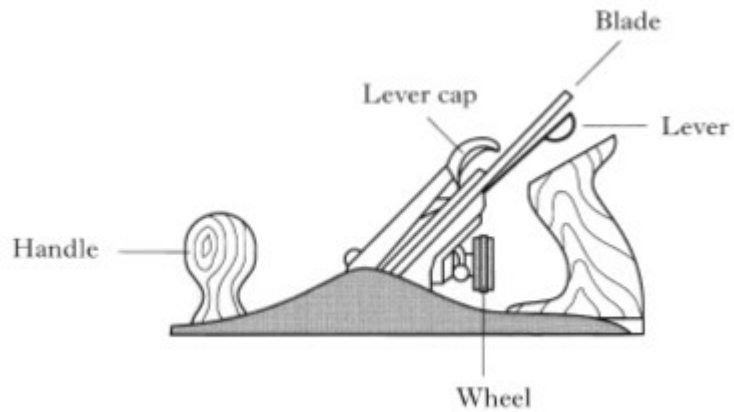


State the name of this type of fixing.

\_\_\_\_\_

1

(d) The taper on the arm was formed using a plane.



Describe how the plane can be adjusted to:

(i) Ensure the blade is level:

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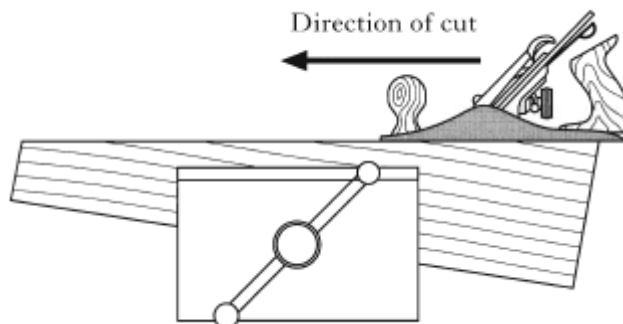
(ii) Change the depth of cut:

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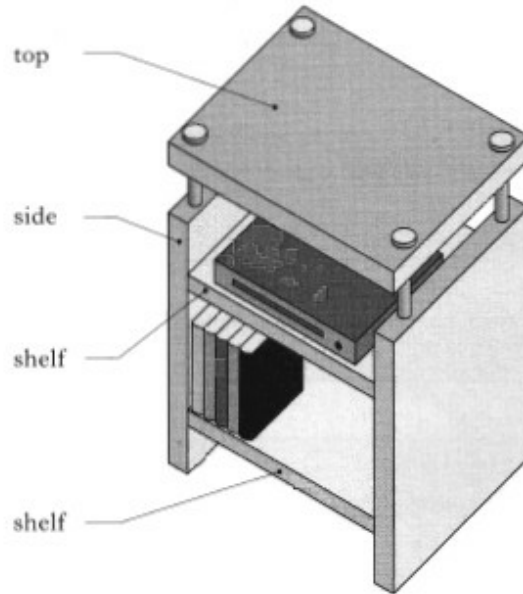
(iii) State a reason why the taper on the arm was planed in the direction shown.



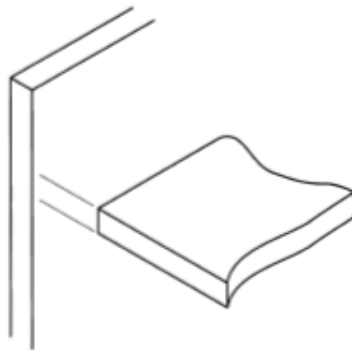
Reason: \_\_\_\_\_

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2. A TV unit made from MDF is shown below.



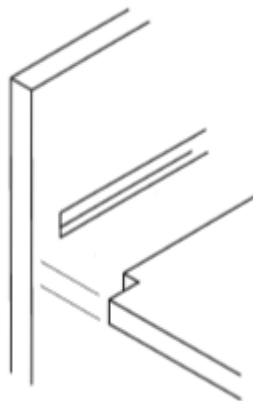
(a) A butt joint was considered for the unit as shown below:



State a reason why this joint was rejected.

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(b) The joint shown below was used to join the shelves to the sides.



State the name of this joint.

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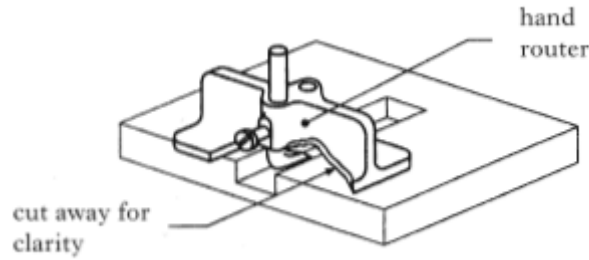
(ii) State an aesthetic reason for using this joint.

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1

(c) A hand router was used to finish the bottom of the joint.

(i) With reference to the sketch below, describe how you would set this tool to finish the joint to a depth of 10mm.



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2

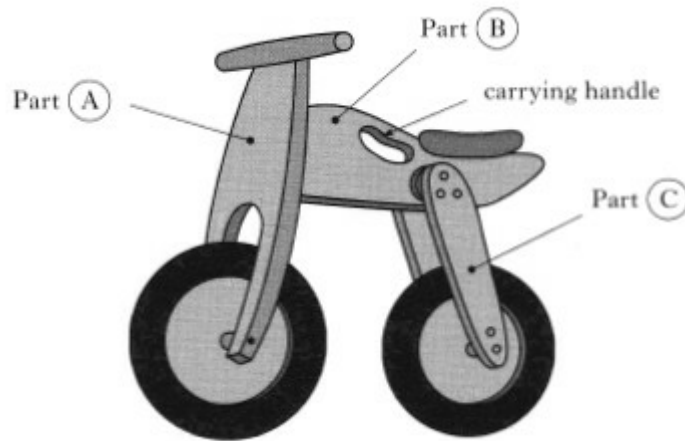
(ii) State one reason why a hand router, rather than a chisel, would be more suitable for 'finishing' the bottom of the joint.

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1

3. A child's toy is shown below.



(a) Parts A, B and C are made from plywood.

State two reasons for this choice of material.

1. \_\_\_\_\_
2. \_\_\_\_\_

2

(b) State the name of a machine tool that could be used to cut the shape of Part A.

\_\_\_\_\_

1

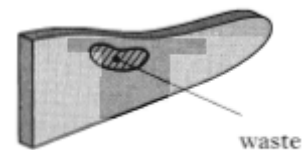
(c) An incomplete sequence of operations for the manufacture of the carrying handle is shown.

(i) State the operation carried out at Step 2.

1. mark out the waste using a template.

2. \_\_\_\_\_

3. remove the waste using a coping saw.



1

(ii) Describe how a coping saw is adjusted when cutting the outline shape of the carrying handle.

\_\_\_\_\_  
 \_\_\_\_\_

2

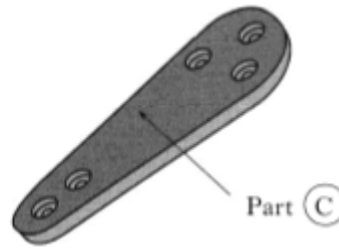
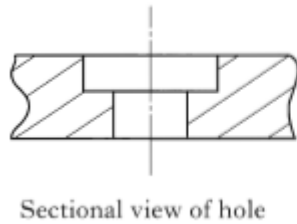
(d) Part C, the rear forks, were made in pairs.

State one method of ensuring that both parts are identical.

\_\_\_\_\_

1

(e) Holes of the type shown below are made in the rear forks.



The tools shown below were used to drill the holes in the rear forks.



(i) State the name of each tool.

Tool 1 \_\_\_\_\_

Tool 2 \_\_\_\_\_

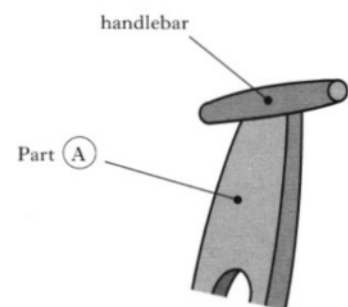
2

(ii) State a reason why tool 2 was used before tool 1 when drilling the holes.

(f) Name and sketch a suitable method of joining the handlebar to Part A.

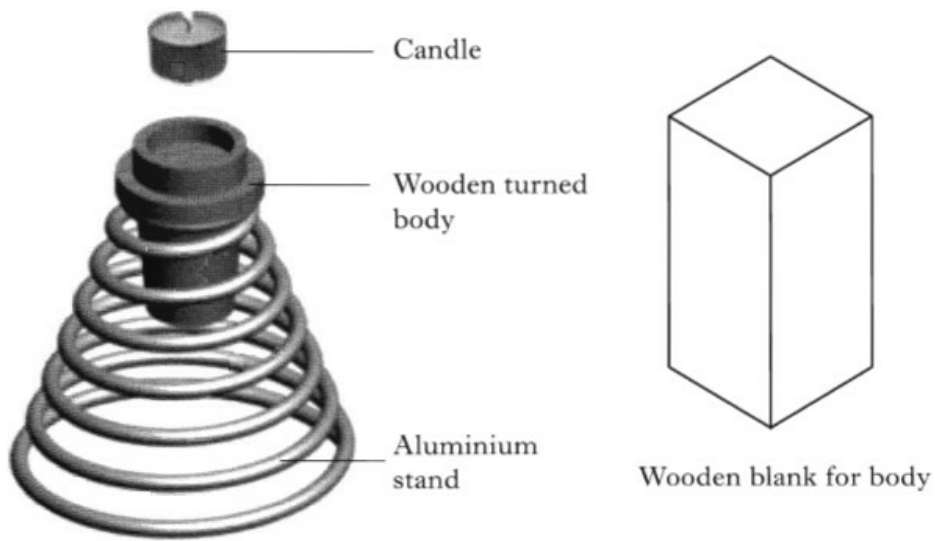
Name of jointing method. \_\_\_\_\_

Sketch of jointing method.



2

4. A candle holder is shown below.



(a) The wooden body was manufactured from a blank on a wood lathe.

Describe three stages in preparing a wooden blank before fitting to the lathe.  
*Sketches may be used to illustrate your answer.*

Stage 1

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Stage 2

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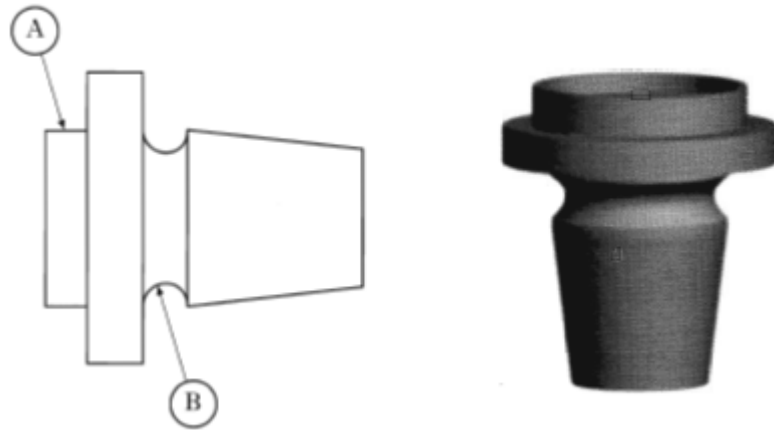
Stage 3

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(b) The wooden body is shown below.



(i) State the name of the turning tool used to produce the square shoulder shown at A.

\_\_\_\_\_

1

(ii) State the name of the turning tool used to produce the groove shown at B.

\_\_\_\_\_

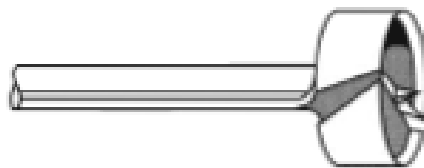
1

(iii) When wood turning, state an advantage of using a revolving centre rather than a dead centre.

\_\_\_\_\_

1

(c) The tool below was used in the manufacture of the candle holder.



State the name of this tool.

\_\_\_\_\_

1