

STUDENT NUMBER Letter

VCE VET FURNISHING

Written examination

Thursday 10 November 2022

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	20	20	20
B	10	10	40
C	13	13	40
			Total 100

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, rulers and one scientific calculator.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.

Materials supplied

- Question and answer book of 26 pages
- Detachable insert for Section C in the centrefold
- Answer sheet for multiple-choice questions

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.
- You may keep the detached insert.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1; an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1

Which marking tool is used to mark out dovetail joints?

- A. blue pen
- B. fine liner
- C. HB pencil
- D. carpenter's pencil

Question 2

Which scale is used for a full-size set-out?

- A. 1:1
- B. 1:2
- C. 1:5
- D. 1:10

Question 3

Which clamps are the preferred clamps to use when gluing legs to rails for the base of a dining table?

- A. G clamps
- B. sash clamps
- C. mitre clamps
- D. quick-grip clamps

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Question 4

Which router bit should be used to make the moulding shown above?

- A. chamfer bit
- B. roundover bit
- C. ellipse ogee bit
- D. cove and fillet bit

Question 5

A business has ordered \$398.50 of timber but the GST of 10% has not been included.

What is the total price of the timber, including GST?

- A. \$388.65
- B. \$402.49
- C. \$435.42
- D. \$438.35

Question 6

Which hardware is used to assemble the components of a flat pack bookcase?

- A. figure 8
- B. cam and bolt
- C. D-ring hanger
- D. nuts and bolts

Question 7

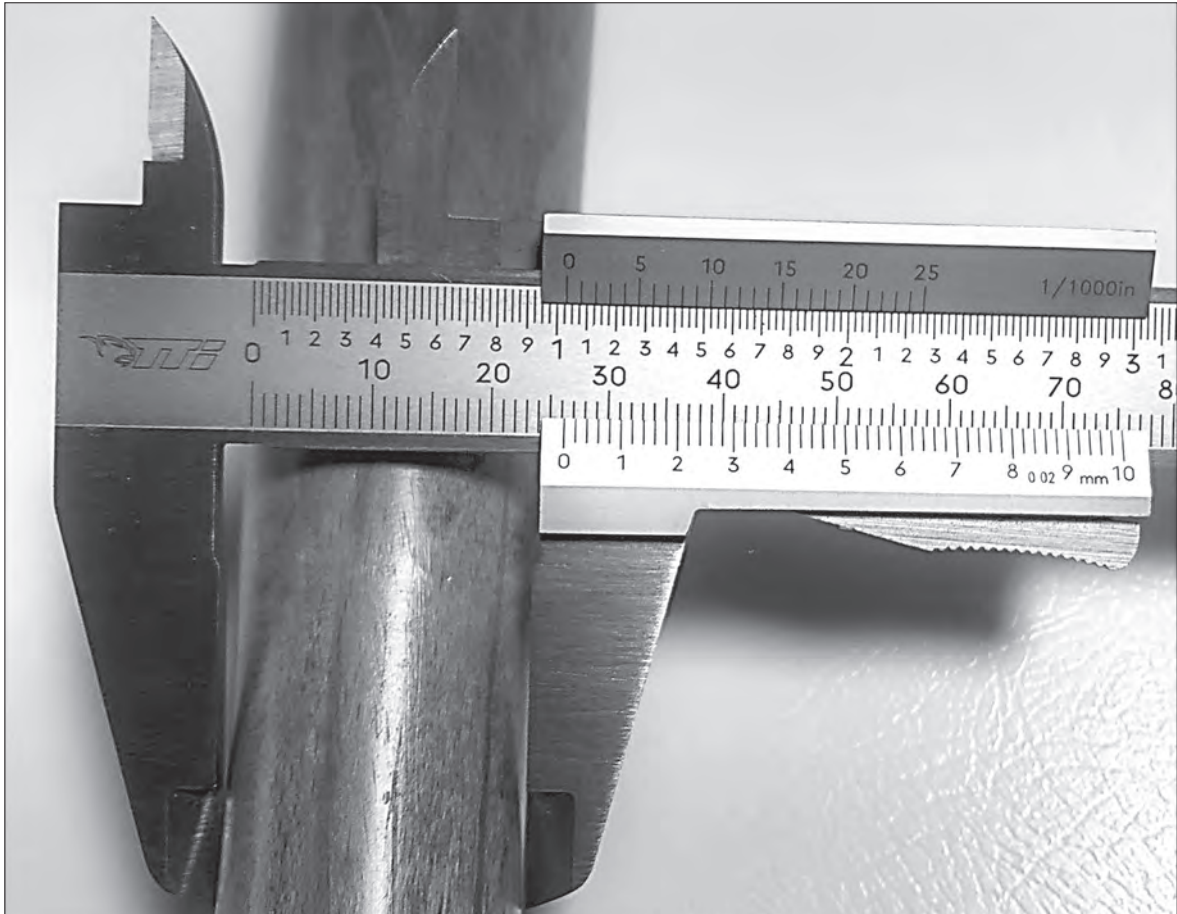
A 300 mm steel ruler used for woodworking has

- A. metre measurement marks.
- B. chamfered edges.
- C. millimetres marked flush to the end.
- D. a different scale marked on both edges of the ruler.

Question 8

Which of the following is necessary for a safe working environment?

- A. a production plan
- B. full glue bottles
- C. a clean workbench and work area
- D. separate bins for timber and steel

Question 9

What is the diameter of the leg shown above?

- A. 24.2 mm
- B. 25.0 mm
- C. 26.2 mm
- D. 40.0 mm

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Question 10

Sue has to make a small table. First she must draw it full size, showing a plan, the front elevation and a side sectional view. She will need to block in each view, producing three rectangles using the right-angle triangle method.

What is the ratio of the triangle?

- A. 1:2:3
- B. 2:4:6
- C. 3:4:5
- D. 5:6:7

Question 11

Jerry is making a bedside table. He must countersink the screws to fix the solid timber drawer runners in place.

How deep will Jerry countersink the screw heads?

- A. 5 mm below the face
- B. 1 mm below the face
- C. flush with the face
- D. 1 mm above the face

Question 12

Which three hand tools are used to mark out a dovetail joint?

- A. square, marking gauge and ruler
- B. ruler, chisel and marking gauge
- C. square, compass and coping saw
- D. sliding bevel, square and marking gauge

Question 13

Which router bit is used to make a groove in a solid timber component?

- A. ogee bit
- B. slot cutting bit
- C. roundover bit
- D. flush trim bit

Question 14

Jenny must cut vanity cabinet ends measuring 580 mm × 380 mm from black melamine high moisture resistance (HMR) particle board.

How many ends can be cut from a 2400 mm × 1200 mm sheet of black melamine HMR particle board?

- A. 6
- B. 8
- C. 9
- D. 12

Question 15

A dining table is 2700 mm × 1200 mm.

How many lineal metres of 150 mm × 25 mm dressed all round (DAR) pine is required to make the tabletop?
Allow an extra 20 mm for each piece of pine for cross saw cuts.

- A. 18.90 m
- B. 21.60 m
- C. 21.76 m
- D. 27.20 m

Question 16

Which one of the following is the correct chisel to use when making a cross halving joint from 42 mm × 19 mm Victorian ash?

A.



B.



C.



D.

**Question 17**

Which one of the following is the correct material to use when building laundry cabinets?

- A. plywood
- B. raw particle board
- C. concrete form board
- D. white melamine HMR particle board

Question 18

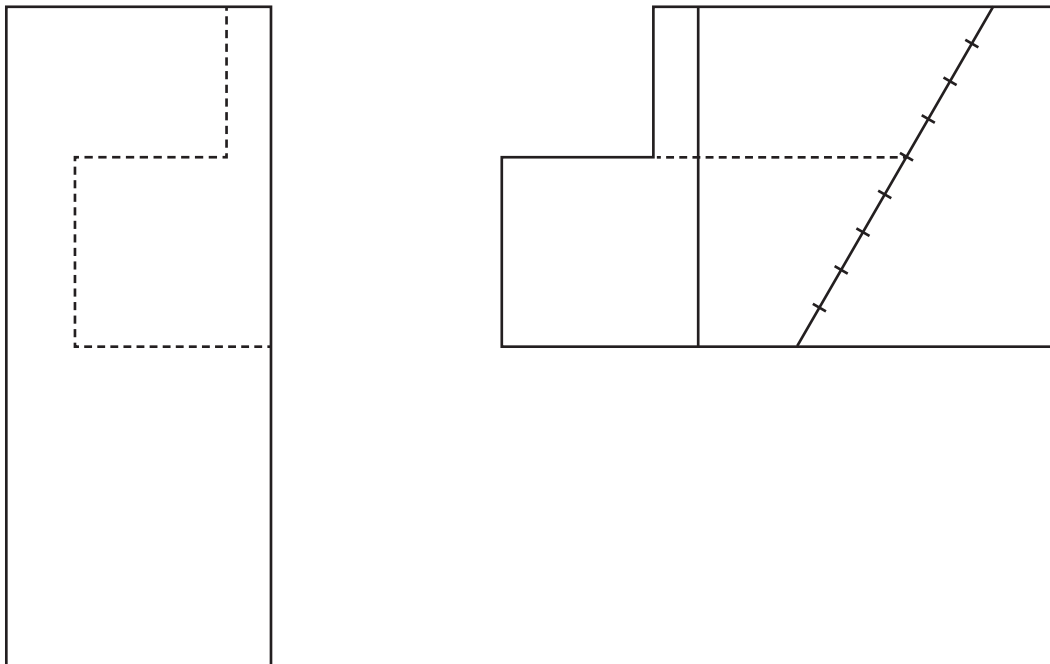
Franklin is planning to build eight dining chairs: two carvers with armrests and the remaining six side chairs without armrests.

Which one of the following gives the correct range for the seat width?

- A. 400–450 mm
- B. 480–580 mm
- C. 670–770 mm
- D. 700–750 mm

Question 19

The diagram below shows a haunched mortise and tenon joint. The width of the haunched tenon has been divided into nine equal parts.



What is the ratio of the tenon to the haunch?

- A. 5:4
- B. 4:5
- C. 9:0
- D. 6:3

Question 20

Toni is making a tabletop for a dining table. The tabletop measures 2130 mm × 960 mm × 40 mm. The boards that will be glued together need to have their edges planed.

Which one of the following is the best plane to use?

A.

jointer plane no. 7

B.

jack plane no. 6

C.

smoothing plane no. 4

D.

block plane

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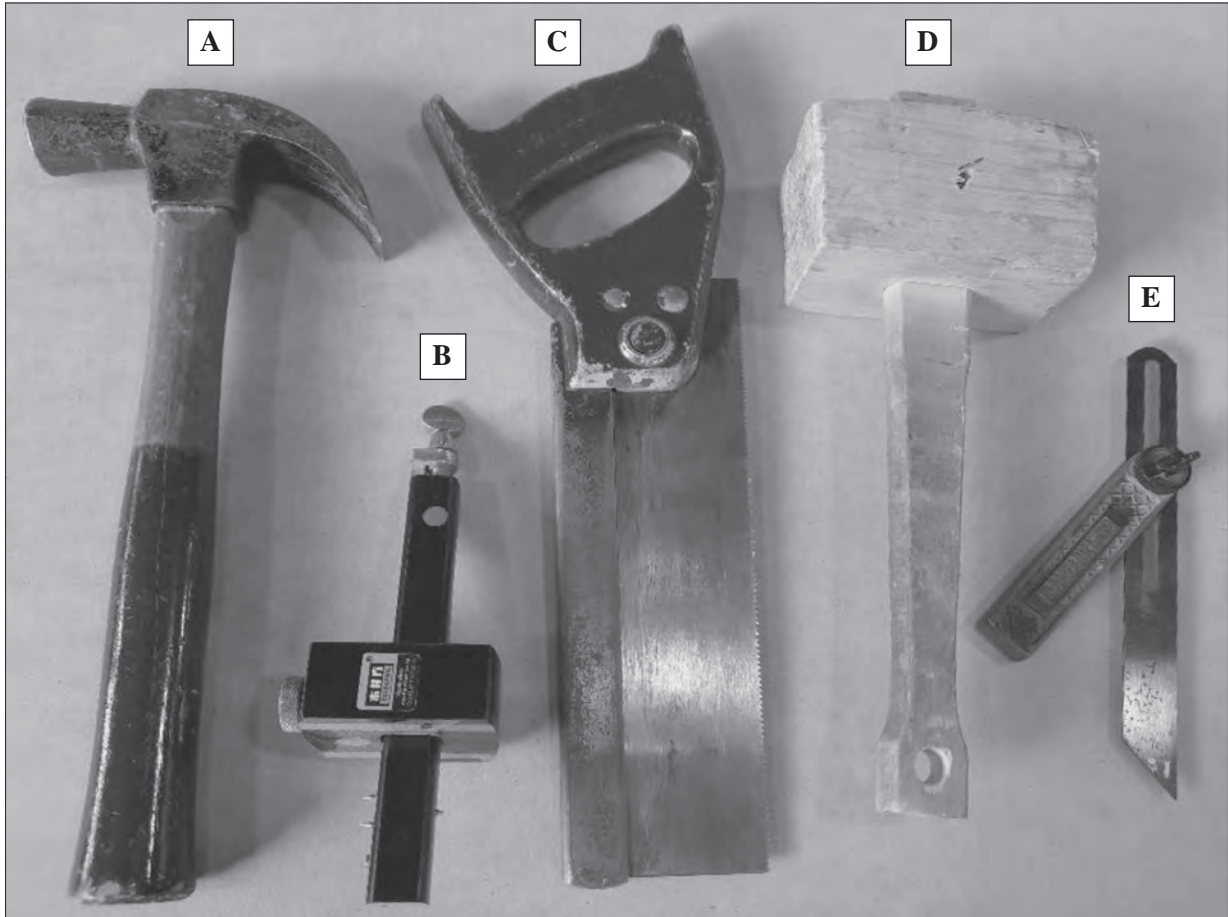
SECTION B – Short-answer questions

Instructions for Section B

Answer **all** questions in the spaces provided.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1 (5 marks)



Name the five hand tools shown above and describe what each hand tool is used for.

Hand tool	Name of hand tool	What the hand tool is used for
A		
B		
C		
D		
E		

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Question 2 (2 marks)

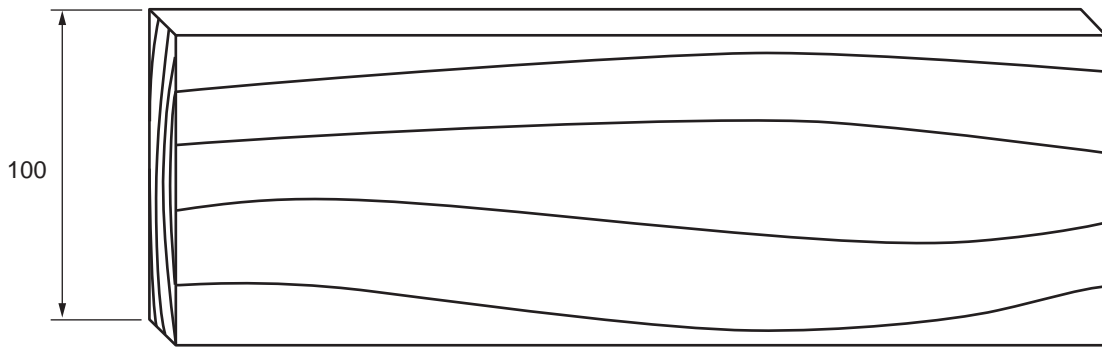
- a. What is an arris on timber furniture? 1 mark

- b. How is an arris removed from timber furniture? 1 mark

Question 3 (8 marks)

- a. Henry is making a hall table with two hand-cut dovetail drawers located under the tabletop, suspended on solid timber drawer runners. Both drawers measure 100 mm in height and have two dovetails. Henry knows that the ratio of the dovetail angle is 1:6.

On the diagram below, show how Henry will determine the angle at which to set his sliding level. Label your diagram. 2 marks



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- b. A suitable glue needs to be selected before gluing the widening joints for a solid timber top.

From the list below, select two suitable glues and provide one advantage and one disadvantage of each selected glue:

- polyurethane
- dry hide glue (animal glue)
- cyanoacrylate (superglue)
- contact adhesive
- polyvinyl acetate (PVA)
- epoxy (Araldite)

6 marks

	Glue no. 1	Glue no. 2
Selected glue		
Advantage		
Disadvantage		

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Question 4 (6 marks)

Calculate the amount of timber required to make 70 side tables, in cubic metres. Write your answers in the bold boxes in the cutting list below, correct to six decimal places.

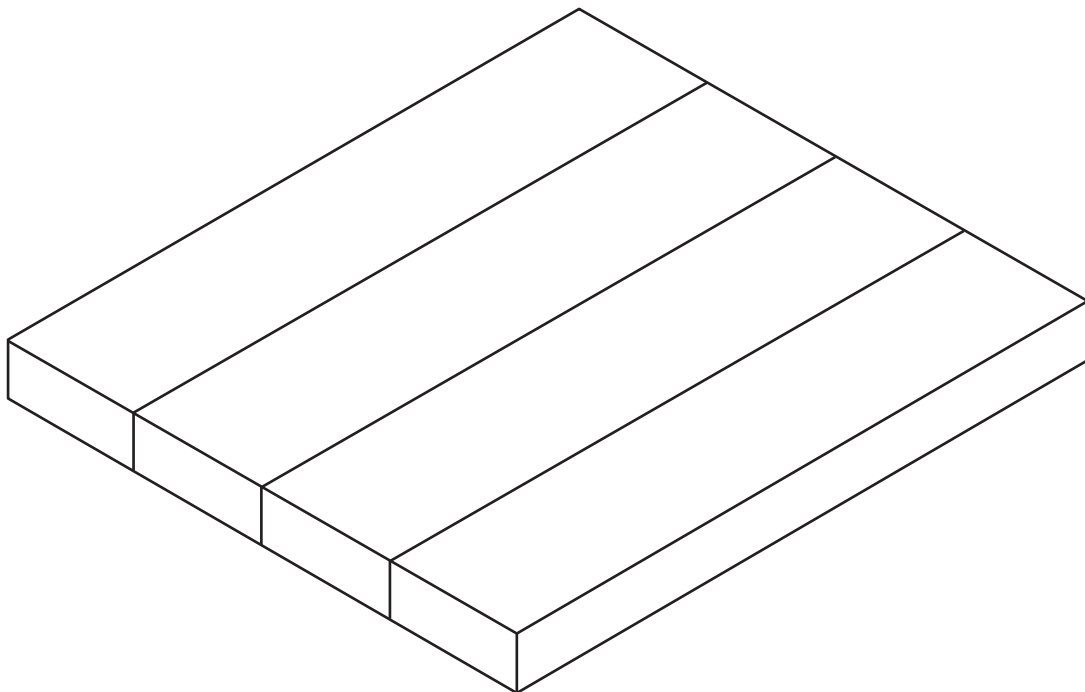
Cutting list

Item no.	Item	Qty	Length (mm)	Width (mm)	Thickness (mm)	Amount of timber required (m ³)
1	leg	4	765	40	40	0.004896
2	rails	4	425	100	19	
3	top	1	545	545	19	
Total for one table (m ³)						
25% waste (m ³)						
Total including waste for one table (m ³)						
Total for 70 tables (m ³)						

Question 5 (2 marks)

The diagram below shows four back-sawn boards, ready to be joined to make a tabletop.

Mark the end grain orientation to minimise cupping.

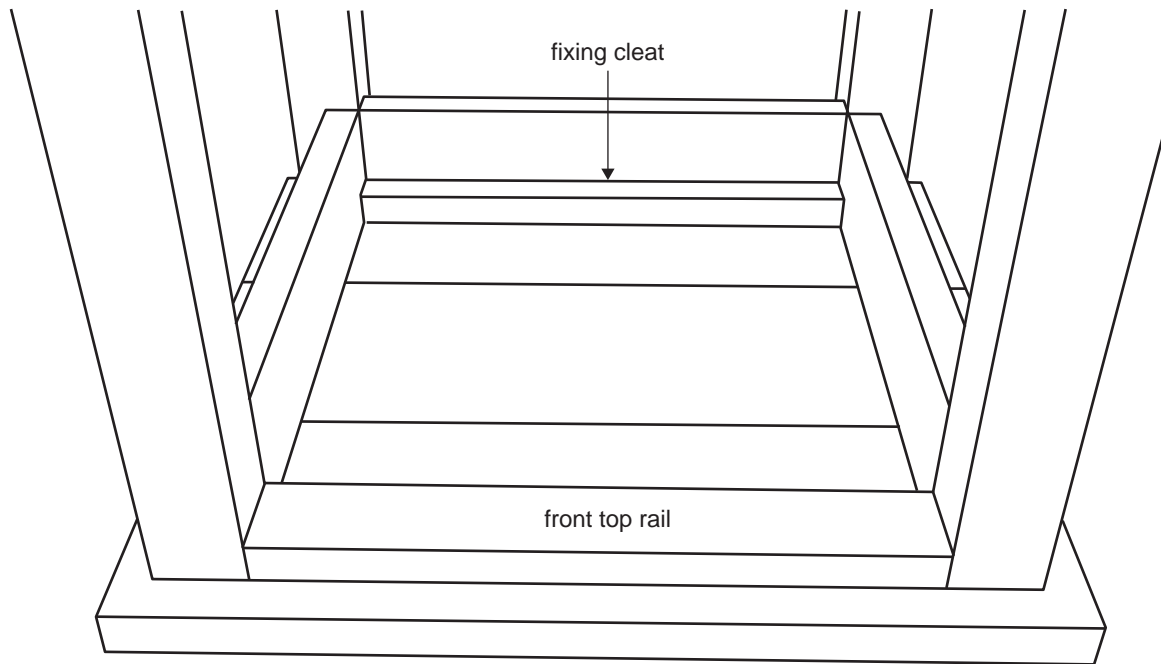


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Question 6 (3 marks)

Raphael is making a bedside table using solid Tasmanian myrtle. The tabletop will be screwed through the front top rail and the fixing cleat using 30 mm long countersunk head wood screws. The tabletop will be flush with the back of the back legs and will have a 20 mm overhang on the front and sides. The way in which the tabletop is fastened must accommodate timber movement towards the front.

On the diagram below, sketch the position and shape of the clearance holes in the fixing cleat and the front top rail. Use labels to explain your sketch.

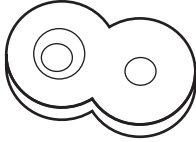
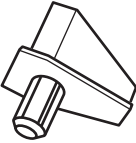
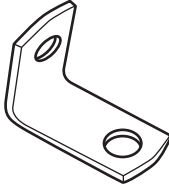
**Question 7** (2 marks)

Jake is assembling the legs and rails of an occasional table. The dowels are 50 mm long and 10 mm in diameter. The thickness of each leg is 25 mm, allowing for dowel holes of 20 mm depth. The depth of the dowel holes in the rails is 32 mm.

Which components should the dowels be inserted into first? Explain your answer.

Question 8 (6 marks)

Name each item of hardware shown below and describe what it is used for.

Hardware	Name and use
	Name
	Use
	Name
	Use
	Name
	Use

Question 9 (2 marks)

What personal safety advice should a cabinet-maker follow when lifting heavy cabinets?

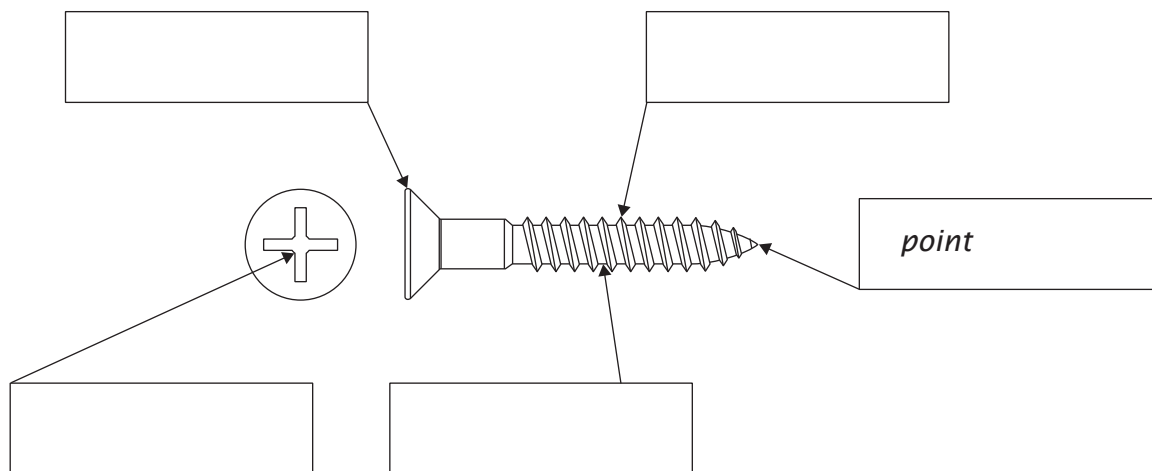
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Question 10 (4 marks)

Label the parts of the countersunk head wood screw shown below using the letters (A.-D.) provided:

- A. shank
C. thread

- B. head
D. drive



**END OF SECTION B
TURN OVER**

SECTION C – Case study**Instructions for Section C**

Please remove the insert from the centre of this book during reading time.

Use the case study provided in the insert to answer the questions in this section.

Use explanatory diagrams, charts and sketches if you believe they will improve your answers.

Answer **all** questions in the spaces provided.

Unless otherwise indicated, the diagrams in this book are **not** drawn to scale.

Question 1 (5 marks)

Before making the storage bench seat, the tasks listed in the table below must be completed.

What is the purpose of each task?

Task	Purpose
Develop the design brief.	
Produce the working drawings.	
Prepare the cutting list and optimising plan.	
Calculate the material costing and quote.	
Write the project work plan.	

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Question 2 (6 marks)

Complete the table below by filling in the missing information in the bold boxes using the working drawing and specifications.

Cutting list							
Item no.	Item name	No. of pieces	Length (mm)	Width (mm)	Thickness (mm)	Remarks	Material
Backrest							
1	top rail	1	1260	100	40	cut to pattern	jarrah
2	bottom rail	1	1260	40			jarrah
3	stiles	1	550	125	20	two stiles cut from one piece	jarrah
4	splat	1	294		20	cut to pattern	jarrah
5	slats	10	290	60	20		jarrah
Bench/storage/armrests							
6	legs	4	630	40	20		jarrah
7	top and bottom end rails	4	480	40	20		jarrah
8	mid end rails	2	480	60	20		jarrah
9	armrests	2	600	80	20	cut to pattern	jarrah
10	front and back top rails	2		60	20		jarrah
11	front and back bottom rails	2	1300	40	20		jarrah
12	front and back panels		316	130	12		jarrah
13	side panels (centre)	4	316	108	12		jarrah
14	side panels (outer)	4	316	140	12		jarrah
15	base	1	1300	520	12.7		
16	base support rails	4	520	40	20		jarrah
17	seat	1	1262	500			wide-grain bamboo plywood
18	seat hinging rail	1	1262	79	20		jarrah
19	seat end fillers	2	560	40	20		jarrah

Question 3 (5 marks)

The project work plan for the backrest on page 19 progresses from materials preparation to backrest construction.

Use the following list of steps and tools/equipment required to fill in the missing information in the bold boxes of the project work plan. Use only the numbers in the project list.

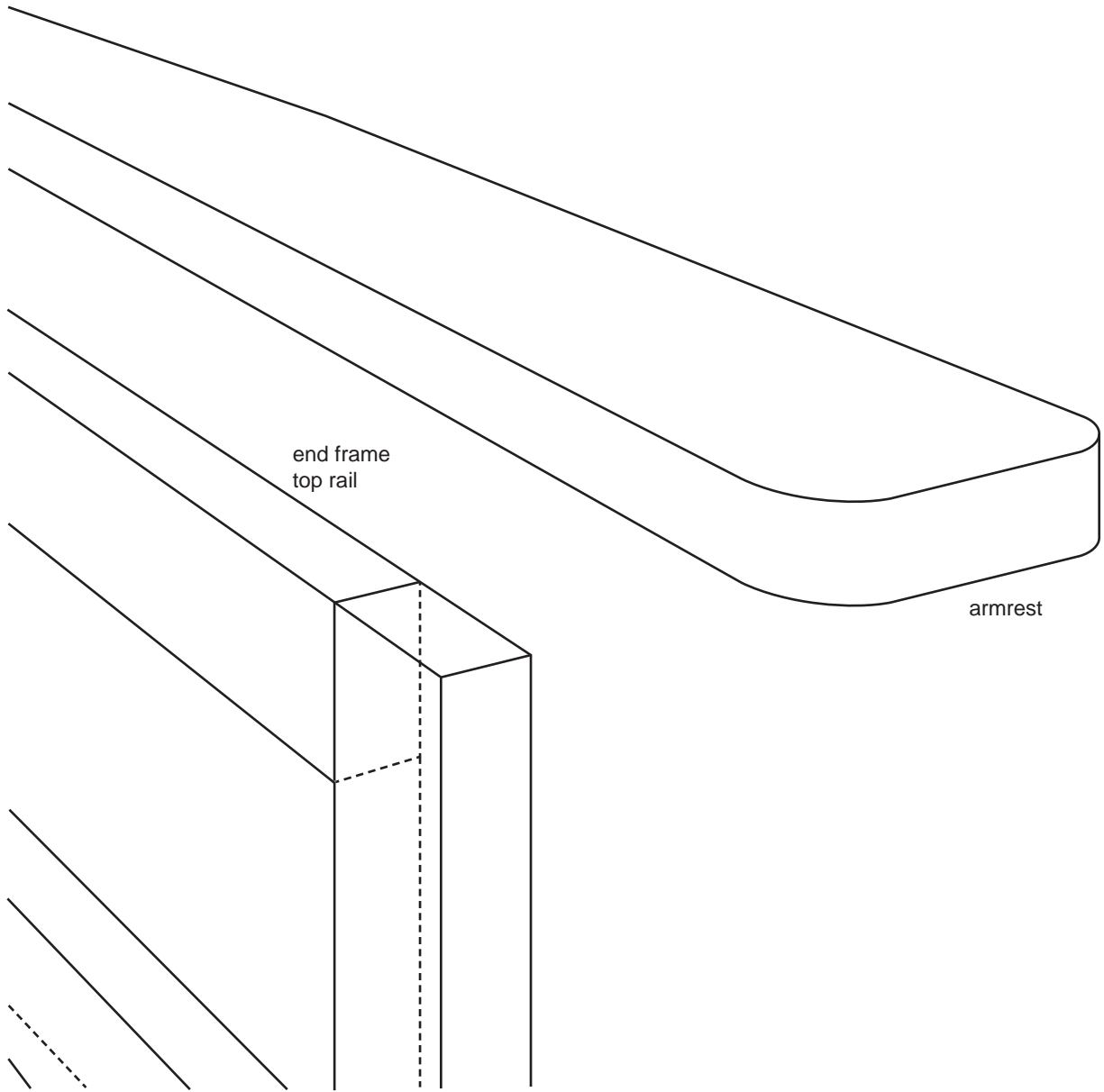
Project list	
Number	Steps and tools/equipment required
1	Drill dowel joints.
2	sash clamps, top rail clamping jig, clamping blocks, workbench, glue, rags, ruler or straight edge, tape measure
3	drop saw, jointer, thicknesser
4	jigsaw
5	Dry clamp to check if components fit together.

Project work plan for the backrest		
Step	Tools/equipment required	Personal protective equipment (PPE) for task
Machine timber and cut to length.		foot, hearing and eye protection, protective clothing
Make router templates for top rail, stiles and splat.	pencil, 1000 mm ruler, jigsaw, spokeshave	foot protection, protective clothing
Mark out top rail, stiles and splat using templates.	pencil, templates	foot protection, protective clothing
Mark out all dowel joints.	pencil, 150 mm ruler, marking gauge, square	foot protection, protective clothing
	battery drill, dowel jig	foot, hearing and eye protection, protective clothing
Cut top rail, stiles and splat roughly to size.		foot, hearing and eye protection, protective clothing
Fix templates to shaped components with screws.	impact driver	foot protection, protective clothing
Rout top rail, sides and splat to shape with flush cutter.	router with flush cutter, extractor	foot, hearing and eye protection, protective clothing
Use rebate cutter to rout the groove for splat and slats.	router with rebate cutter, extractor	foot, hearing and eye protection, protective clothing
Fit block between splat and slats in top and bottom rails.	glue, hammer, brads	foot protection, protective clothing
Sand all parts.	orbital sander, sanding block, abrasive paper	foot, hearing and eye protection, protective clothing
	sash clamps, top rail clamping jig, clamping blocks, glue, rags, ruler or straight edge, tape measure	foot protection, protective clothing
Glue top and bottom rails to slats, and check for square and twist.	sash clamps, top rail clamping jig, clamping blocks, glue, rags, ruler or straight edge, tape measure	foot protection, protective clothing, gloves
Glue back frame to stiles, and check for square and twist.		foot protection, protective clothing, gloves

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Question 4 (2 marks)

On the diagram below, sketch the method detailed in the specifications (page 1 of the insert) to fix the armrest to the end frame top rail.



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Question 5 (4 marks)

Sketch two suitable methods of joining the legs and rails to the base frame.

Method 1	Method 2

Question 6 (6 marks)

Three 100 mm stainless steel, narrow leaf butt hinges will be used to hinge the seat to the seat hinging rail.

Complete the table below by filling in the steps and hand tools required to recess the hinges. Step 1 and Step 3 have been provided.

Step no.	Step	Hand tools
1	<i>Find the centre of the seat and mark the length of the centre hinge on the face and edges of the seat and hinging rail.</i>	<i>tape measure, square, pencil</i>
2		
3	<i>Set a marking gauge to the rebate depth and mark the rebate depth on the faces of the seat and hinging rail.</i>	<i>150 mm ruler, marking gauge</i>
4		
5		

Question 7 (4 marks)

Before applying oil to the storage bench seat, all surfaces must be prepared for oiling.

List four preparation tasks.

1. _____
2. _____
3. _____
4. _____

Question 8 (2 marks)

While the backrest top rail was being cut to shape, the power cord of the jigsaw was accidentally cut.

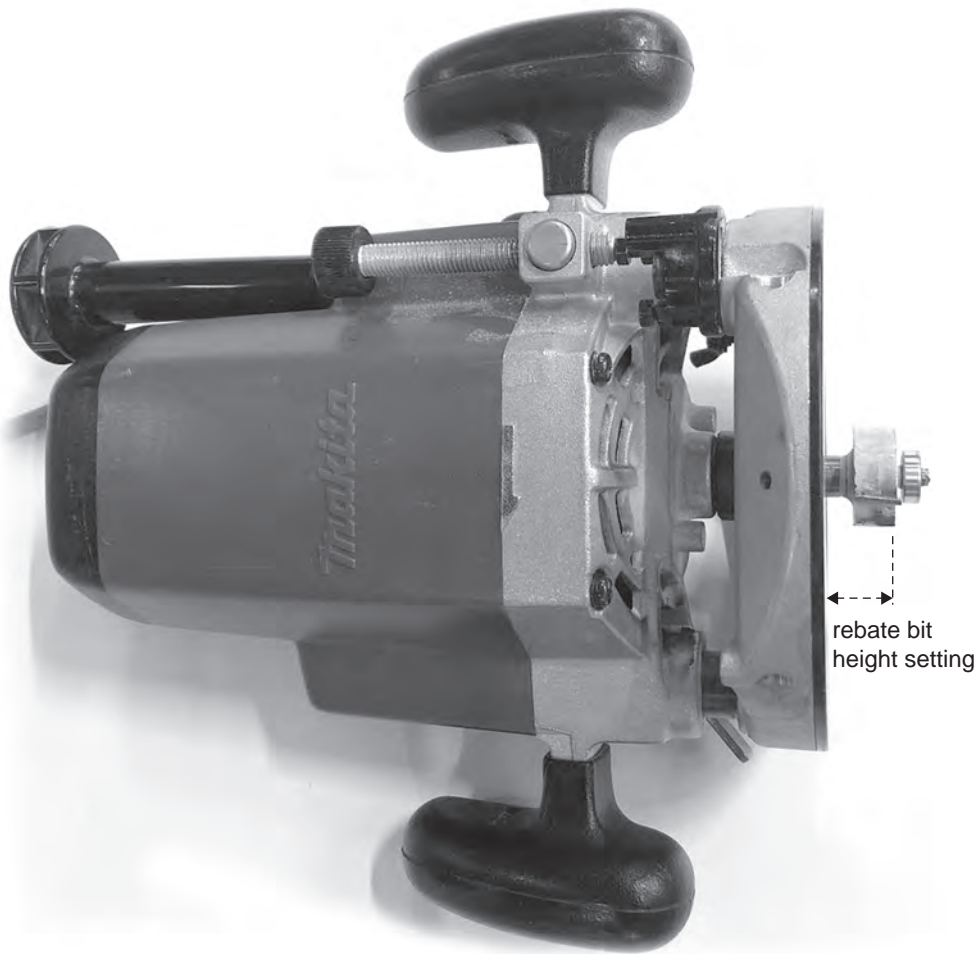
What must be done with the damaged jigsaw?

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Question 9 (2 marks)

- a. The groove for the splat and slats in the backrest top rail must be routed using a router and rebate bit, as shown in the image below.

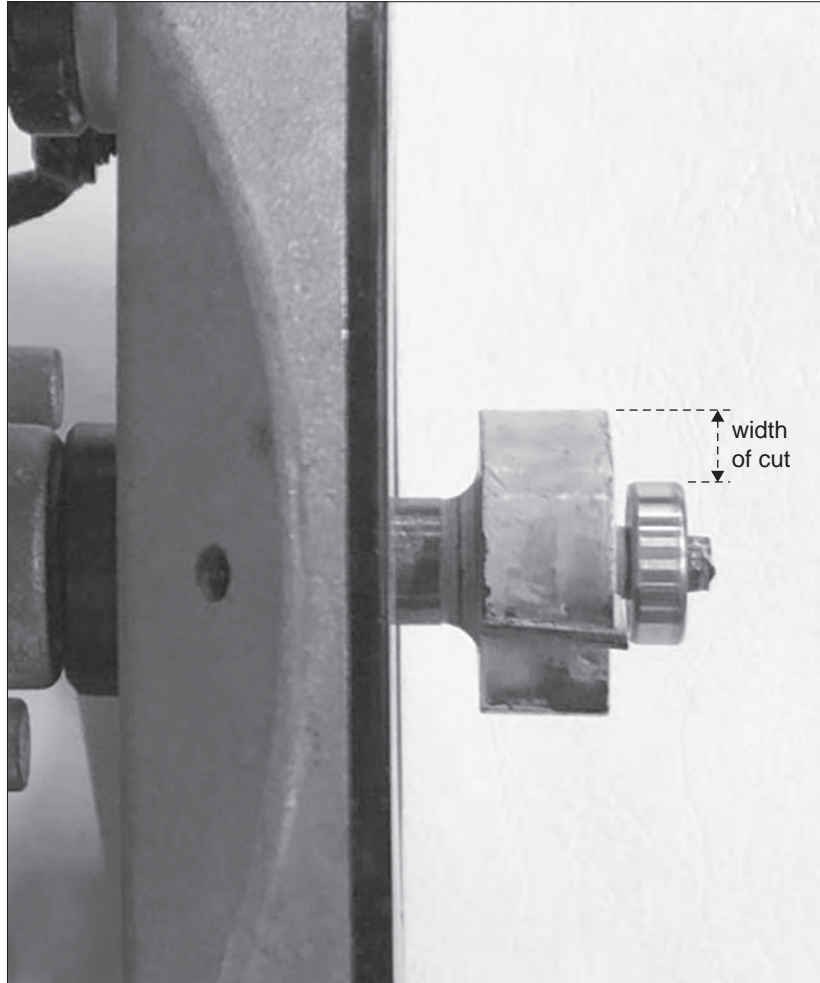


What is the correct height setting, in millimetres, for the rebate bit?

1 mark

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b.



Describe how the width of cut for the rebate bit shown above should be adjusted.

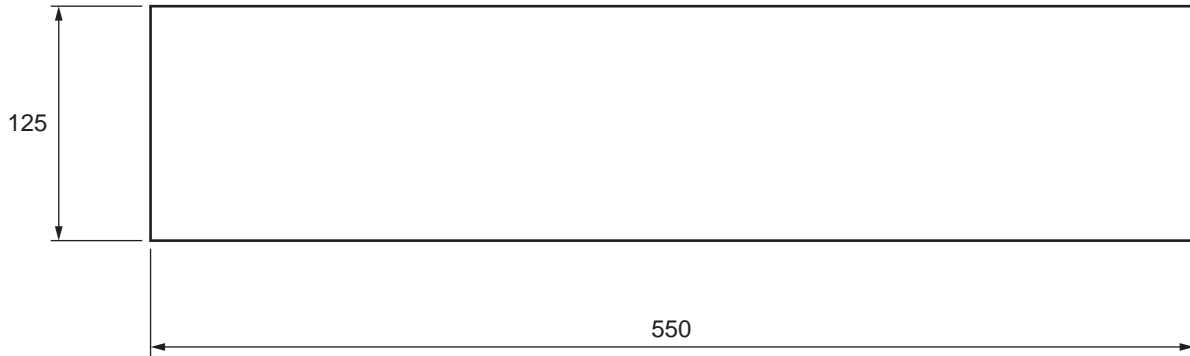
1 mark

Question 10 (1 mark)

What hand tool should be used to notch out the seat end fillers for the storage bench seat?

Question 11 (1 mark)

In the space provided below, sketch how both backrest stiles should be marked out for rough cutting.

**Question 12** (1 mark)

What can be done to minimise damage to the backrest stiles when screw mounting the template for flush cutting with the router?

Question 13 (1 mark)

When marking out the domino joints, what should be done to ensure accuracy and minimise errors?

Insert for Section C

Please remove from the centre of this book during reading time.

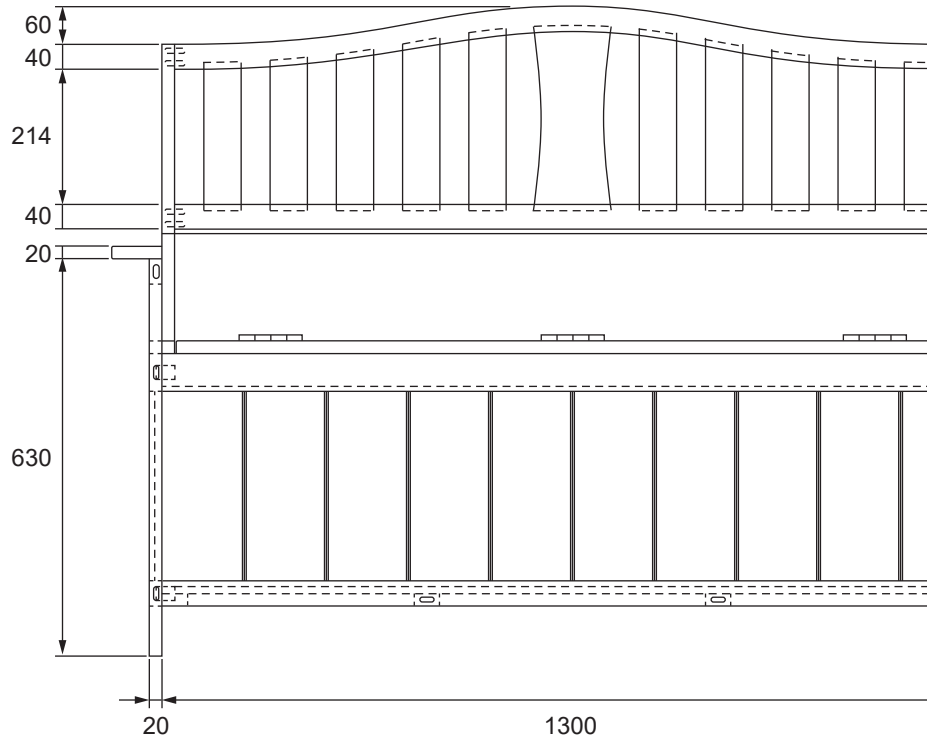
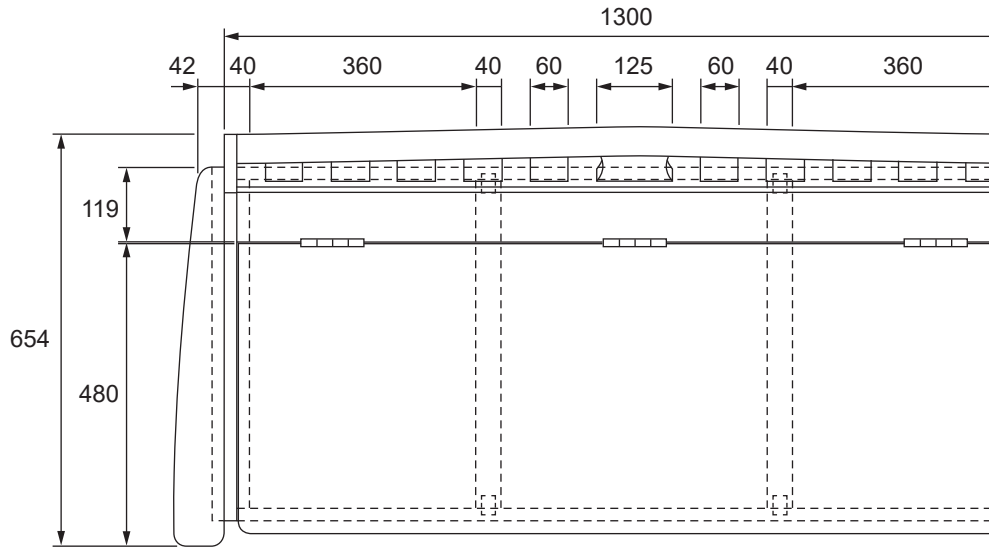
Read the following specifications together with the working drawing on pages 2 and 3 of this insert.

Specifications

A client requires a storage bench seat with the following specifications:

- overall height of the storage bench seat – 1030 mm
- overall depth of the storage bench seat – 660 mm
- overall width of the storage bench seat – 1463 mm
- all timber – solid jarrah
- all timber – 20 mm thick unless otherwise noted
- all panels – 12 mm thick V-groove panels
- panels rebated into the frames 12 mm × 8 mm
- seat – 19 mm thick wide-grain bamboo plywood
- seat overhangs at the front by 20 mm and has a 20 mm radius curve on each corner
- three 100 mm long butt hinges on the seat
- bottom storage panel – 12.7 mm thick wide-grain bamboo plywood
- armrests and seat front and sides have a 2 mm arris
- armrests fixed to end frames top rail with 10G × 38 mm screws counterbored from underside
- backrest fixed to end frames with 10G × 30 mm screws
- leg, rail and frame construction uses domino joints
- top and bottom back seat rest construction uses dowel joints
- two coats of decking oil

TURN OVER



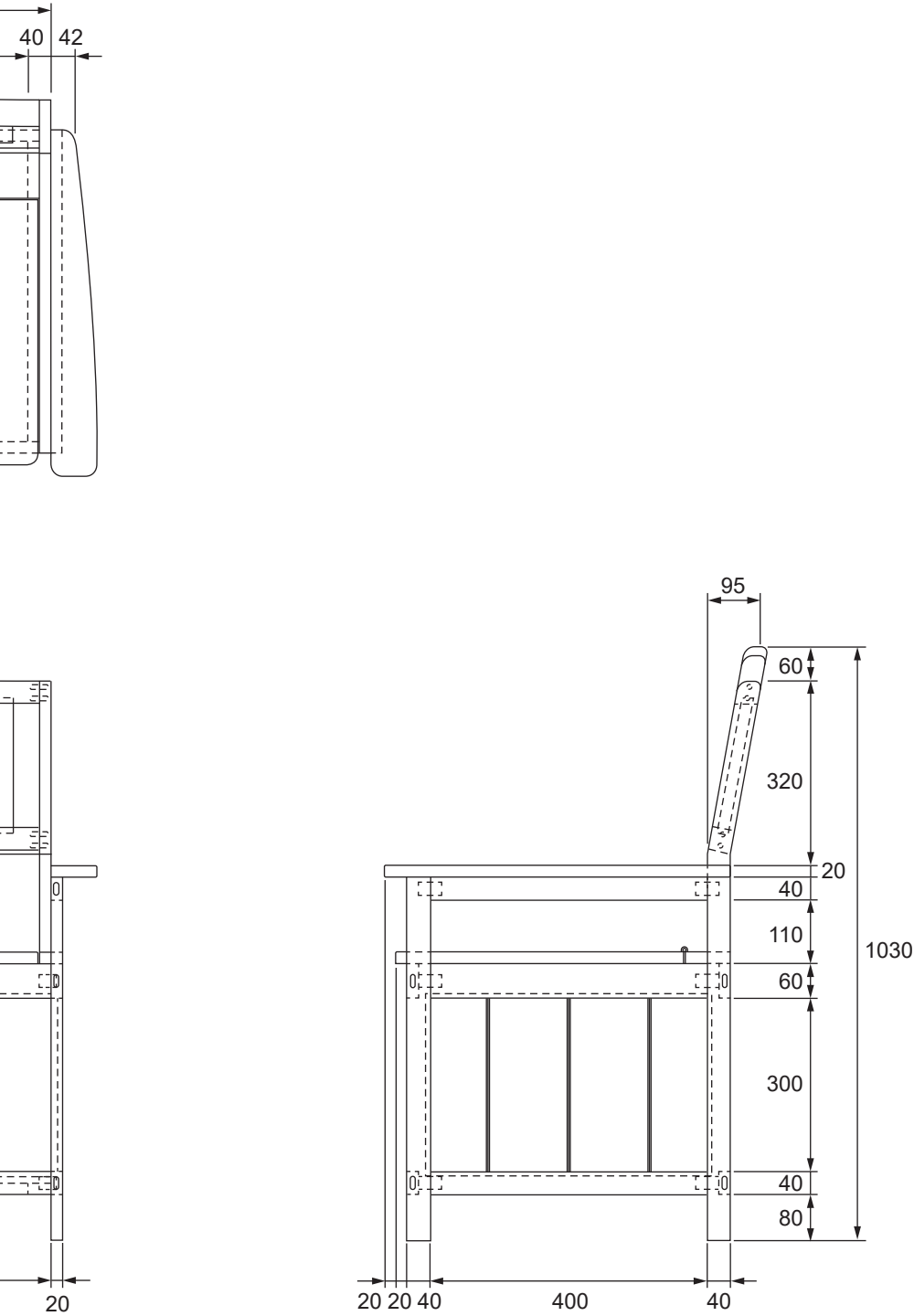
Storage seating

Address:

Ph:

Email:

Fa



Drawing Max:	CLIENT S Smith	PRODUCT Storage bench seat	DRAWING Seat 1A	
			DATE 01/02/22	No. IN SET 1
			DRAWN BY J James	THIS DRAWING 1
			DESIGNED J James	DRAWING REFERENCE 1/1
			SCALE 1:12	

END OF INSERT