

工程視圖 (三視圖)

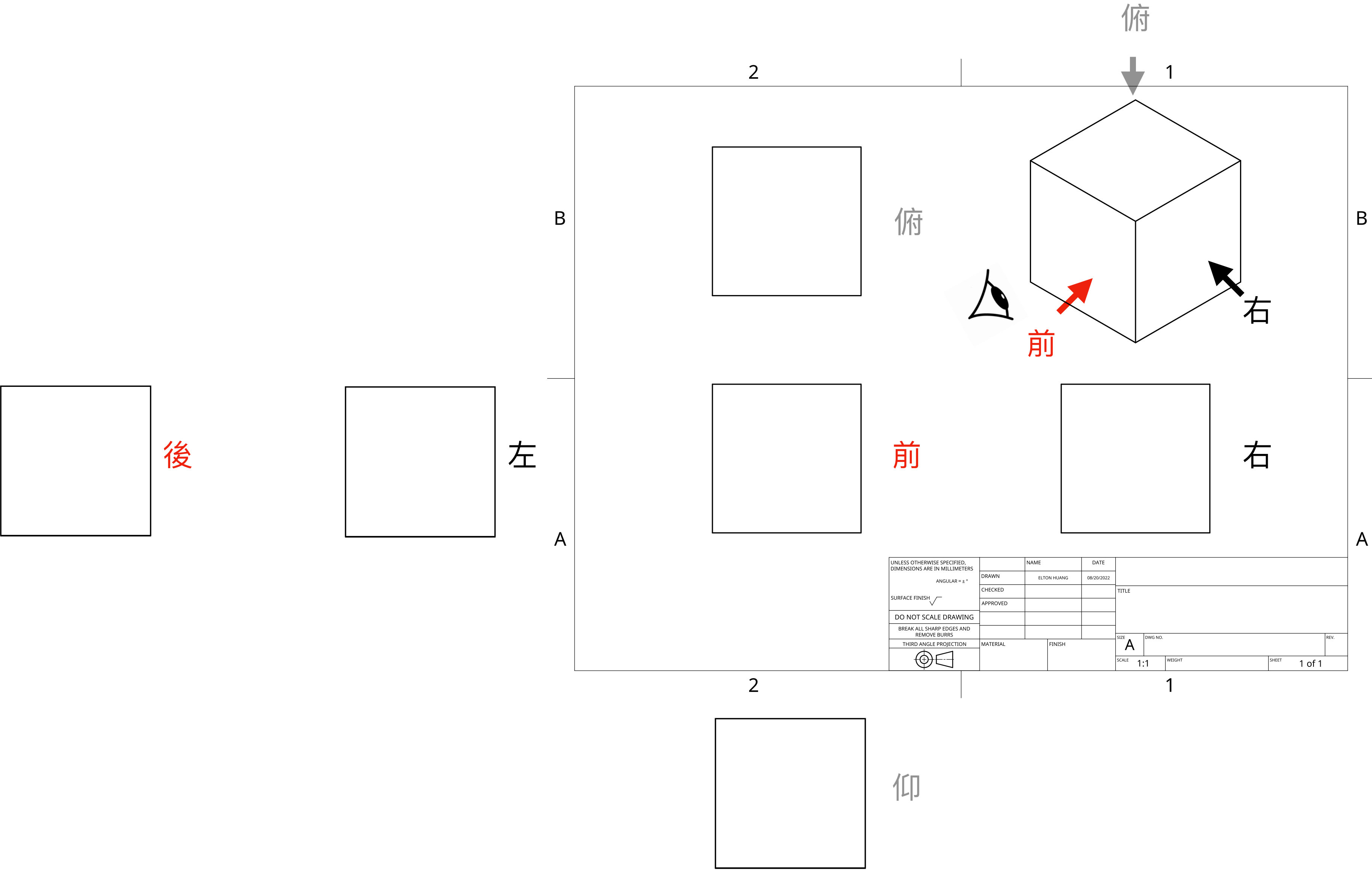
2022 (C) Elton Huang 黃敦紀

扶住比薩斜塔

Honda CR-V Commercial

Oscars Commercial: Illusion with Neil Patrick Harris

展開圖



展開圖

(與右視對稱於分開觀察者與物件的平面)

5?

後

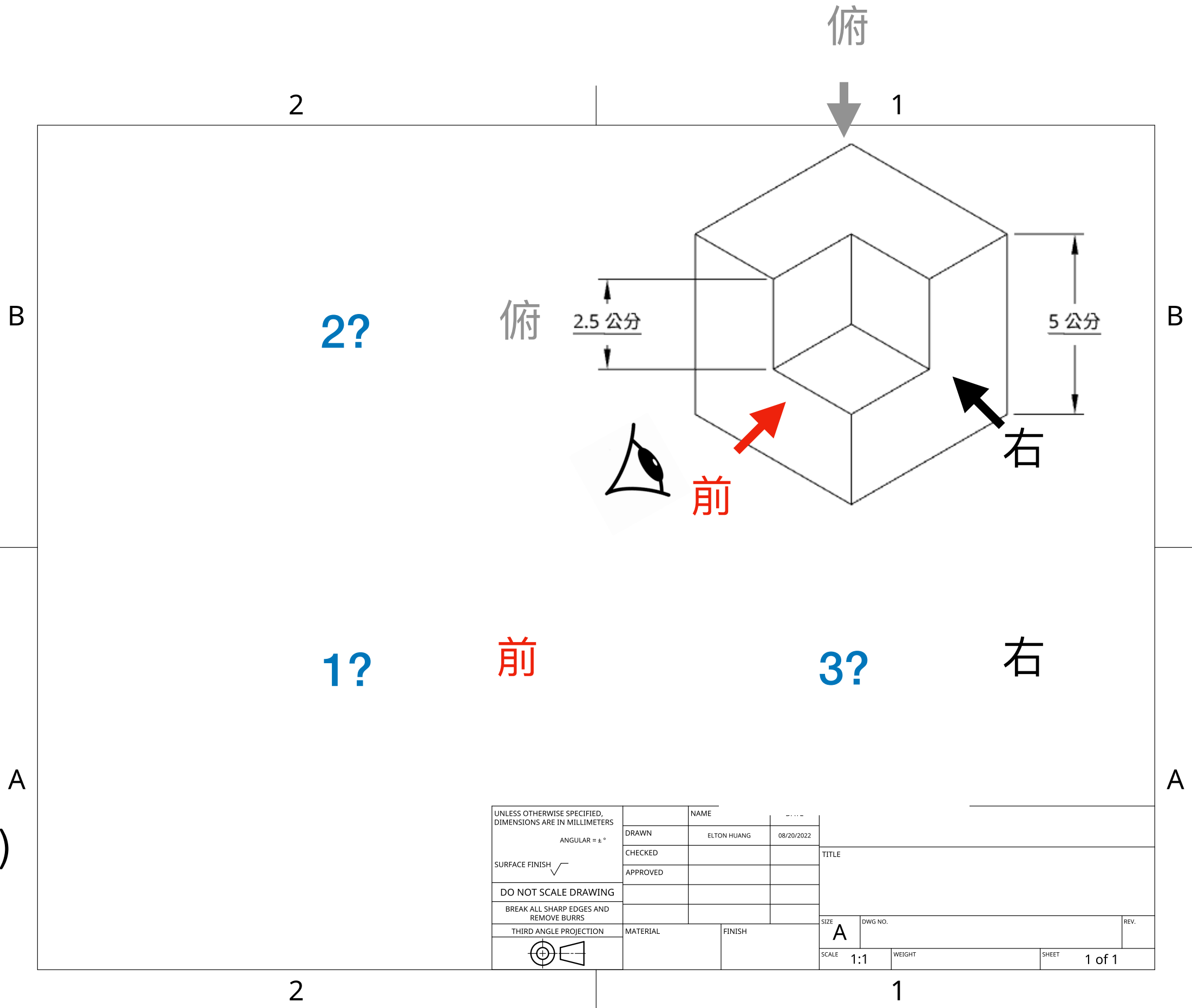
4?

左

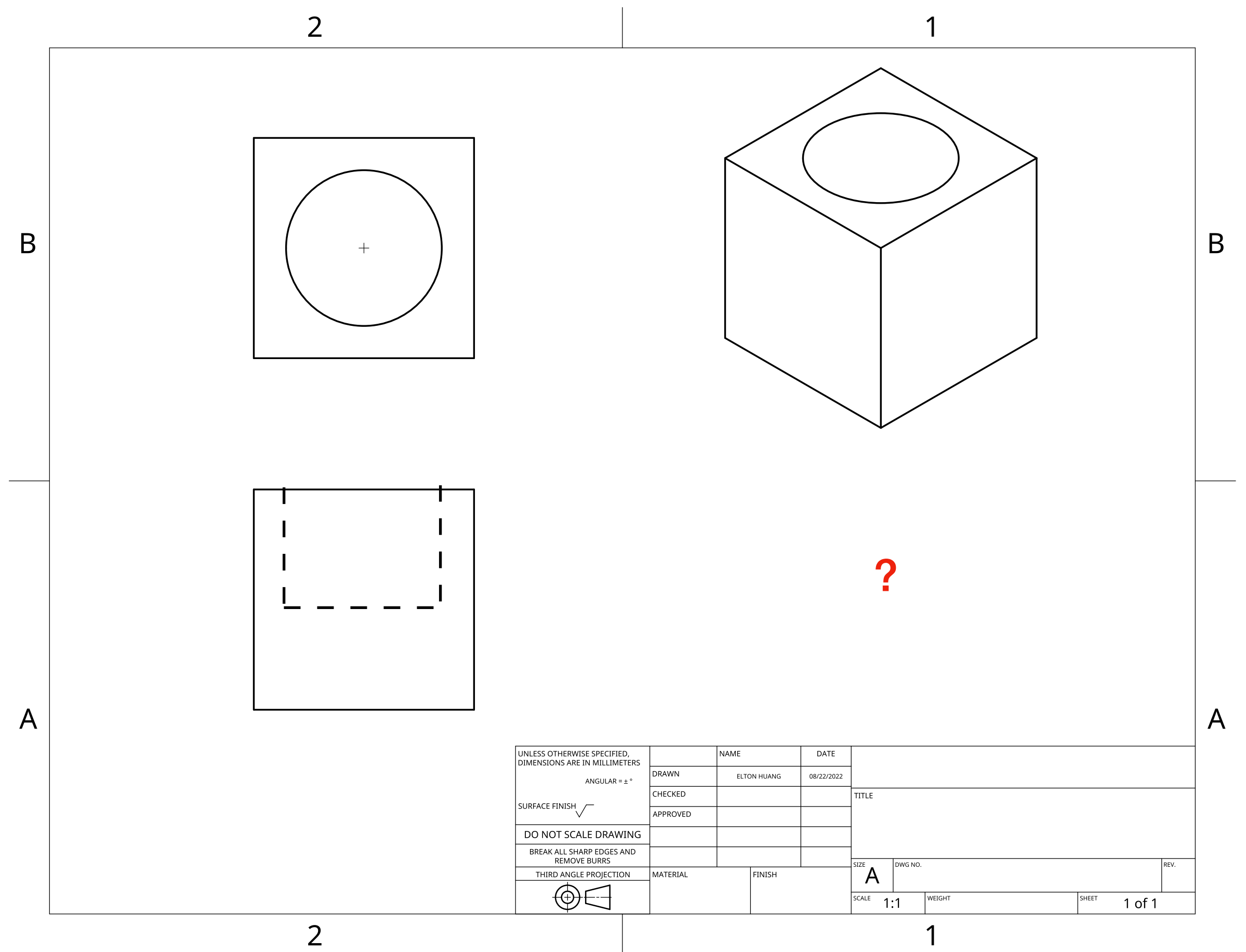
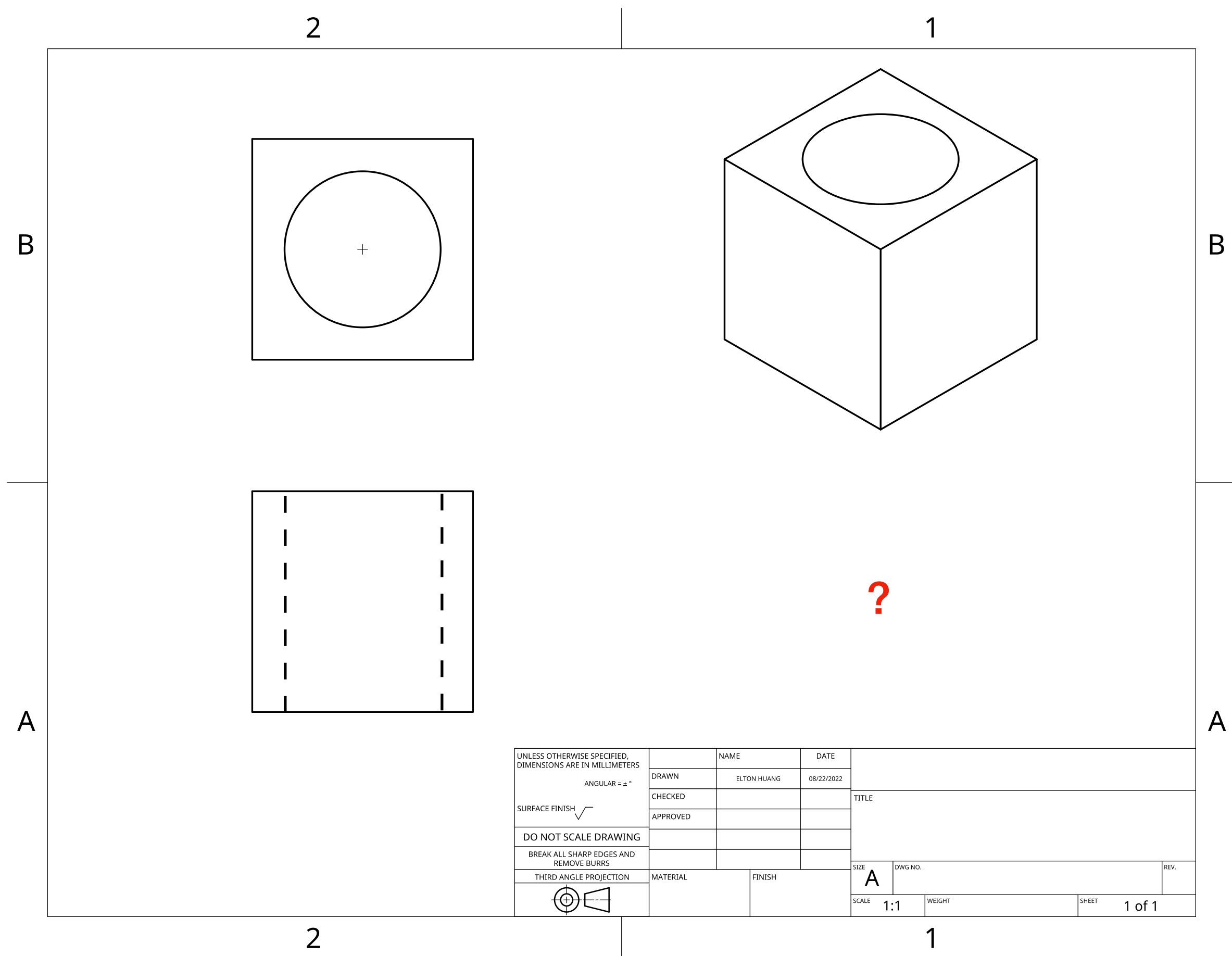
(與右視對稱貫穿過觀察者與物件平面)

6?

仰 (與俯視對稱於水平面)



圓柱體剖半



請嘗試畫出這個立體圖物件的三視圖

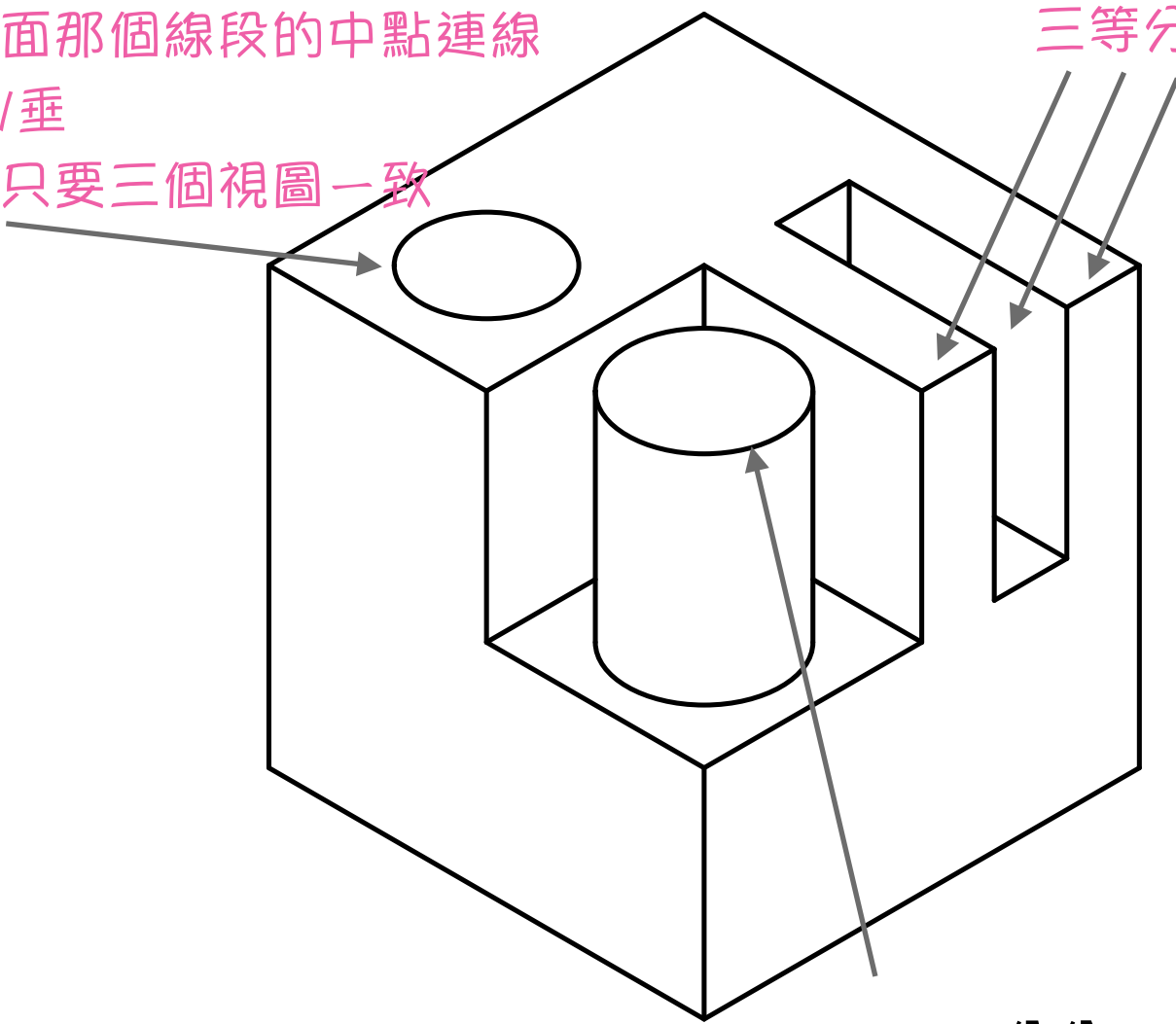
B

A

2

1

這個洞口的圓和隔壁那個一樣大
兩個圓的圓心連線和立方體的邊平行/垂直
這個圓的圓心和它前面那個線段的中點連線
也和立方體的邊平行/垂直
洞多深可自己決定，只要三個視圖一致



三等分
 ϕ 1.5 公分
(R 0.75 公分)
圓心在它下面
那個正方形的正中間

1?

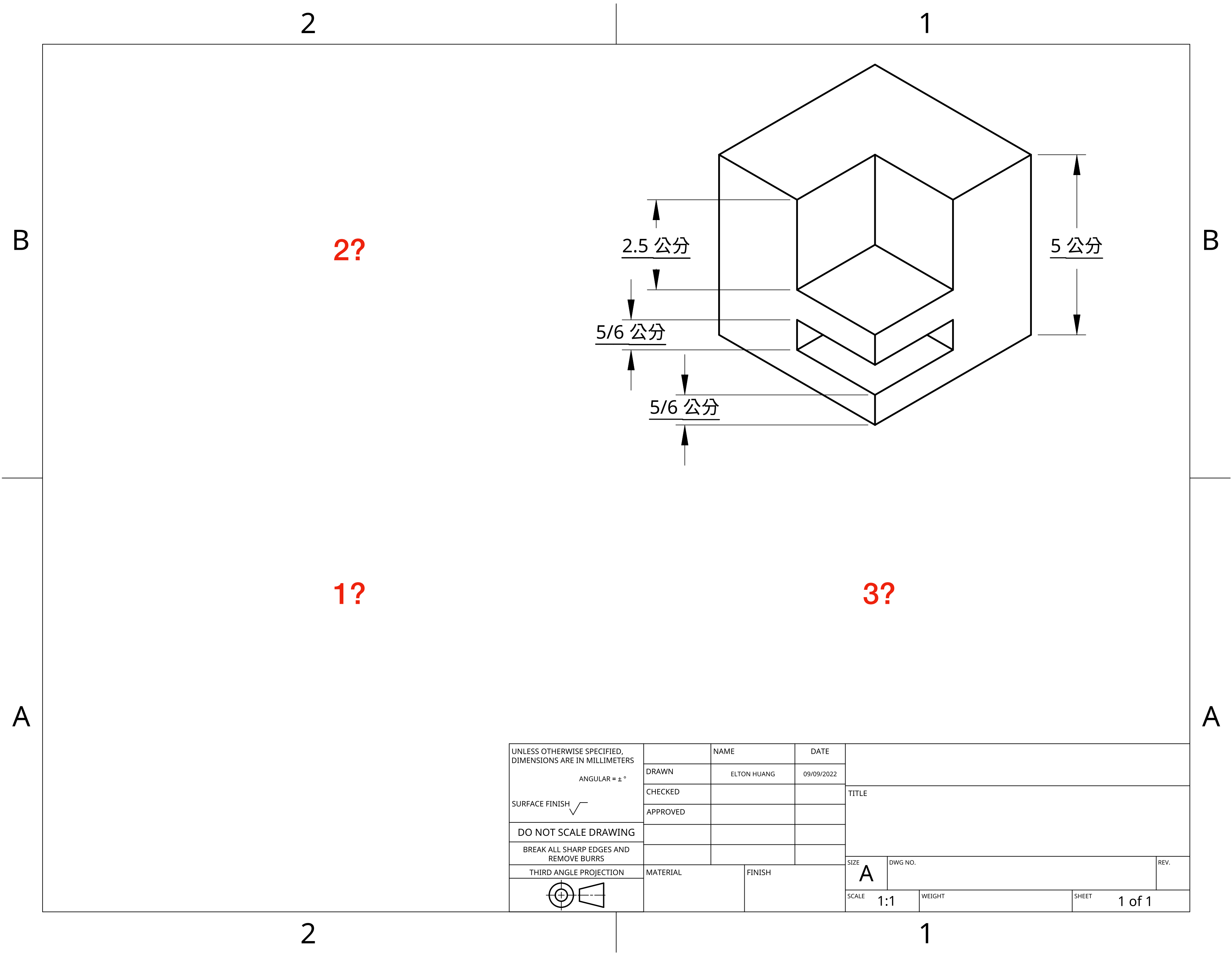
2?

3?

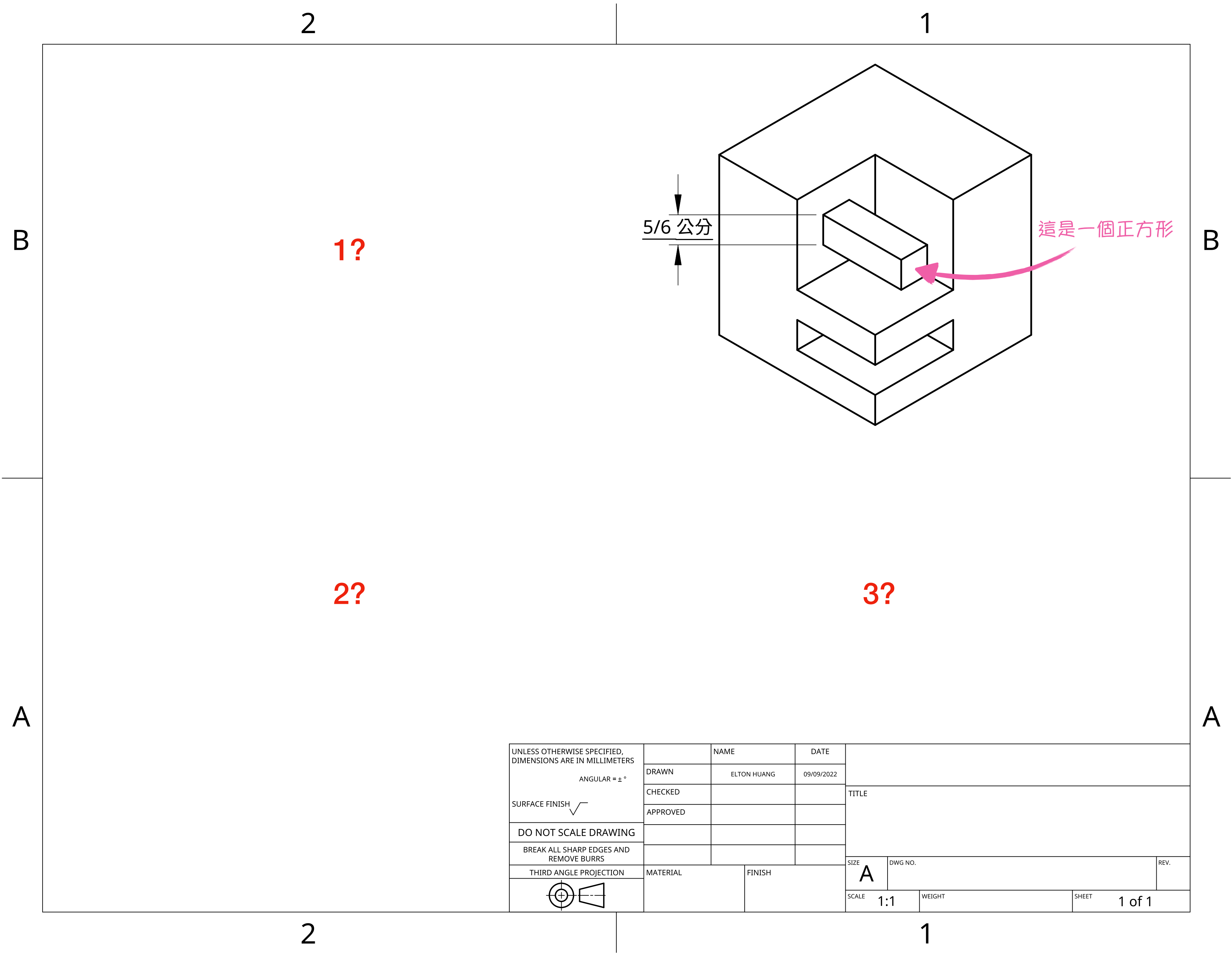
B


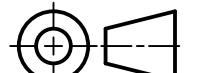
A

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = \pm ° SURFACE FINISH		NAME	DATE	TITLE		
	DRAWN	ELTON HUANG	09/09/2022			
	CHECKED					
	APPROVED					
DO NOT SCALE DRAWING				SIZE A DWG NO. REV.		
BREAK ALL SHARP EDGES AND REMOVE BURRS						
THIRD ANGLE PROJECTION	MATERIAL	FINISH				



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH √	NAME		DATE	TITLE		
	DRAWN	ELTON HUANG	09/09/2022			
	CHECKED					
	APPROVED			SIZE A		
DO NOT SCALE DRAWING						
BREAK ALL SHARP EDGES AND REMOVE BURRS				DWG NO.		REV.
THIRD ANGLE PROJECTION	MATERIAL		FINISH		WEIGHT	
					SCALE 1:1	SHEET 1 of 1



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	DRAWN	ELTON HUANG	09/09/2022				
	CHECKED						
	APPROVED						
DO NOT SCALE DRAWING				SIZE A			
BREAK ALL SHARP EDGES AND REMOVE BURRS							
THIRD ANGLE PROJECTION	MATERIAL	FINISH	DWG NO.		REV.		
			SCALE 1:1		WEIGHT	SHEET 1 of 1	

2

1

B

1?

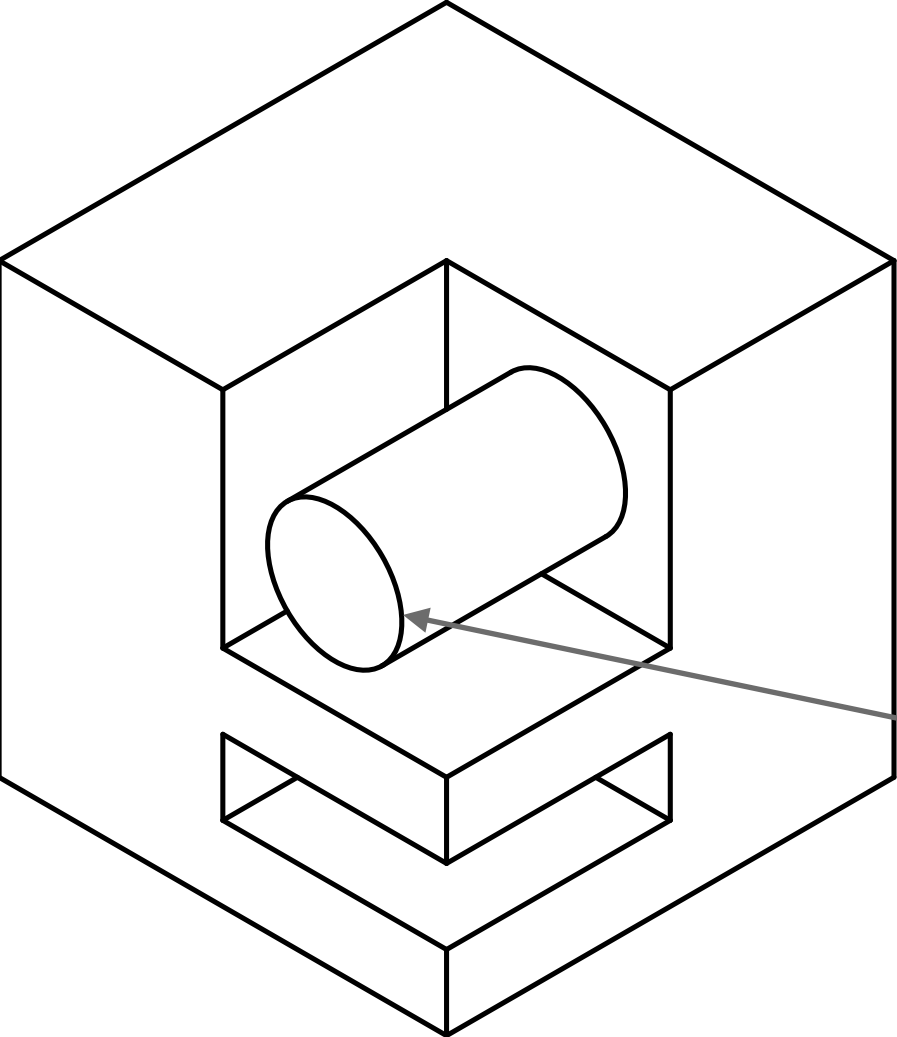
3?

B

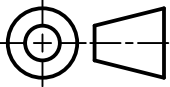
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2?

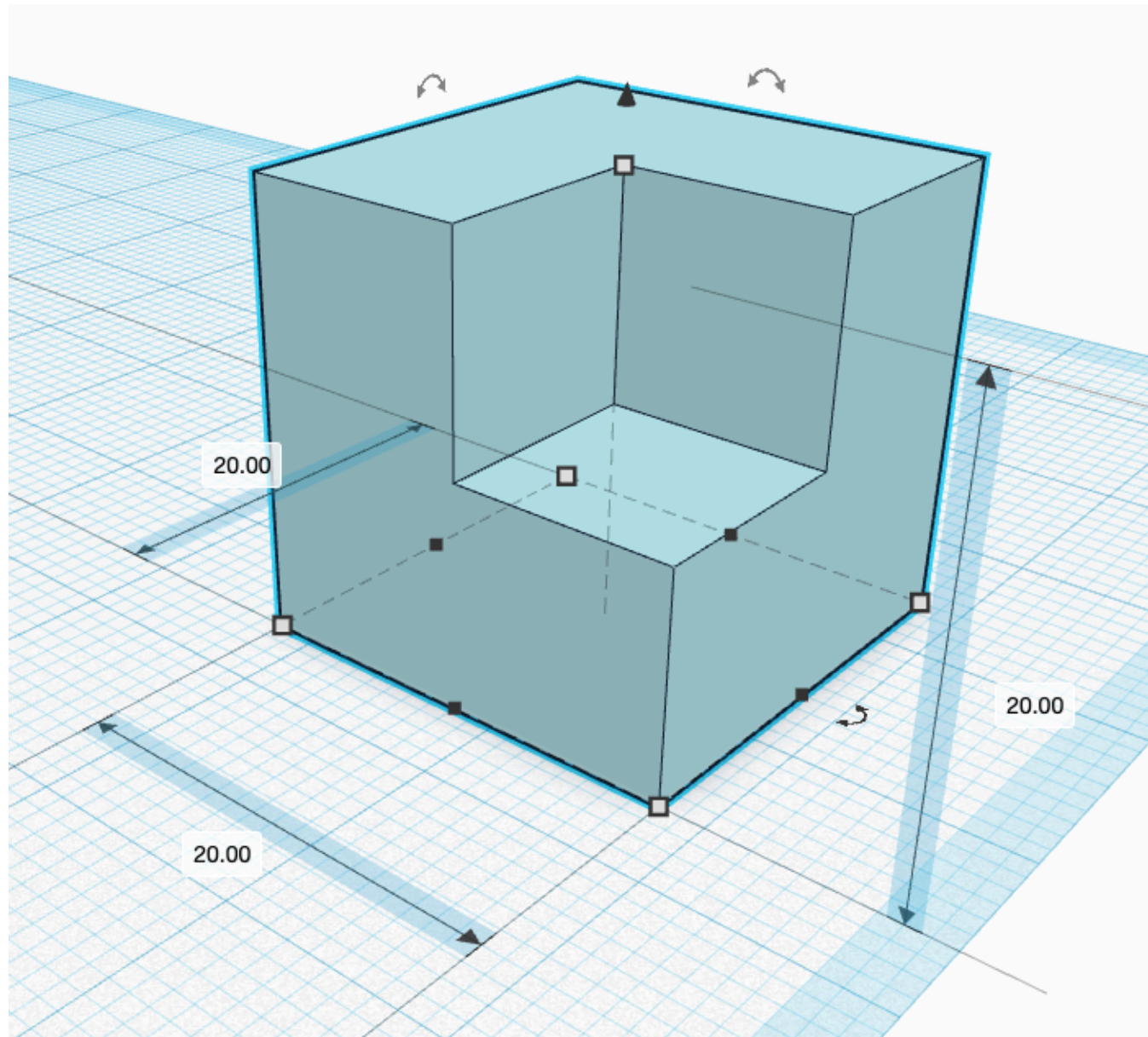
A



φ 1.5 公分
(R 0.75 公分)
圓心在它後面
那個正方形的正中間

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	CHECKED					
	APPROVED					
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BREAK ALL SHARP EDGES AND REMOVE BURRS				SIZE A	DWG NO.	REV.
THIRD ANGLE PROJECTION	MATERIAL	FINISH		SCALE 1:1	WEIGHT	SHEET 1 of 1
						

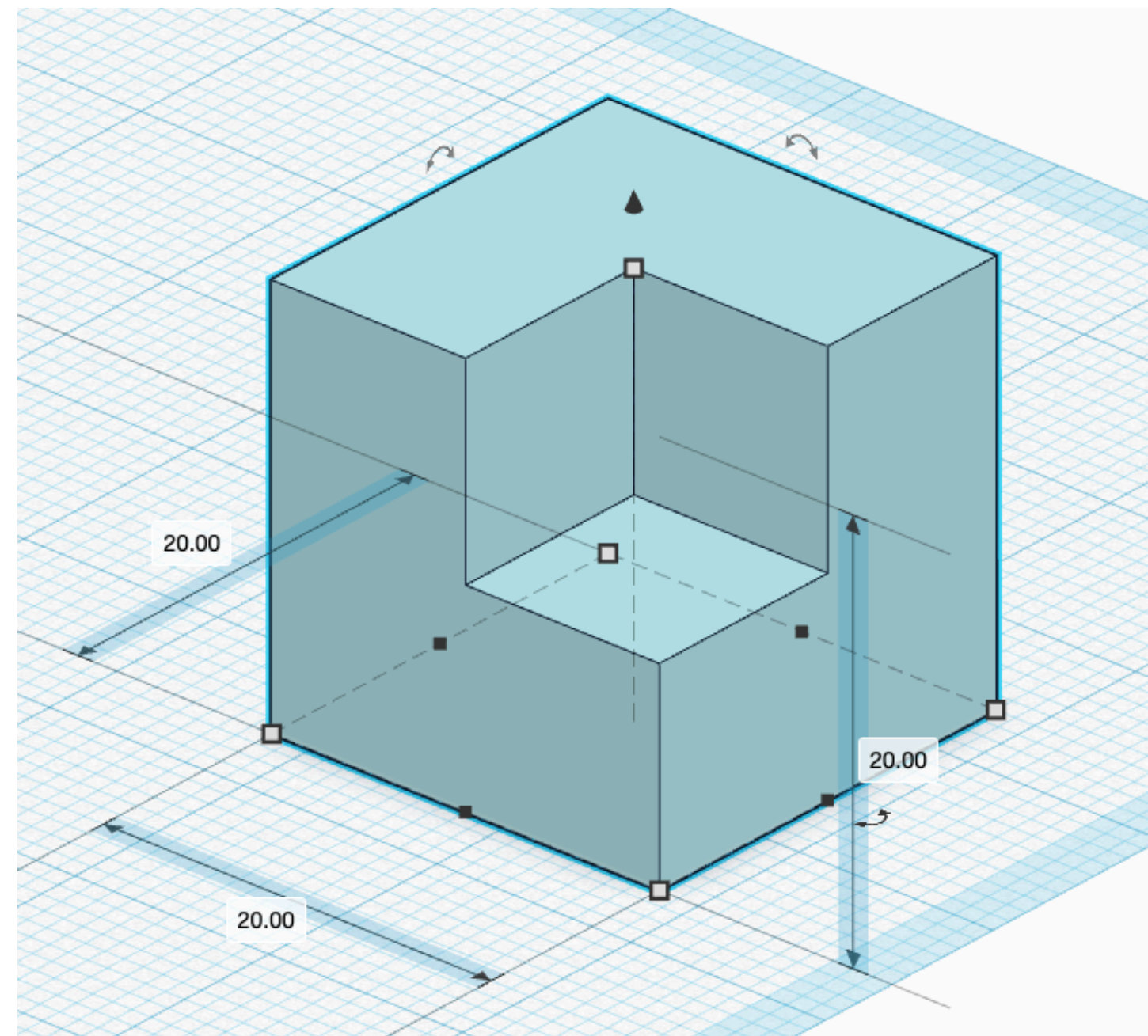
在二維平面呈現三維立體物件的 3 種方式



正視圖、立體圖

和數學立體空間幾何原則一致

物體原來在 3D 空間平行的線
在 2D 圖面上仍然平行



(2 點) 透視圖

和真實世界人的視覺成像感受
(視覺經驗)一致

物體原來在 3D 空間的平行線
延伸後消失在遠處的某一點：
1、2、3 點透視

(同一個物件從上面看)

三視圖

三個視角所看到的成像
決定該物件確切的立體形狀
(對立面才看得到的線畫成虛線)

(同一個物件從前面看) (同一個物件從右面看)

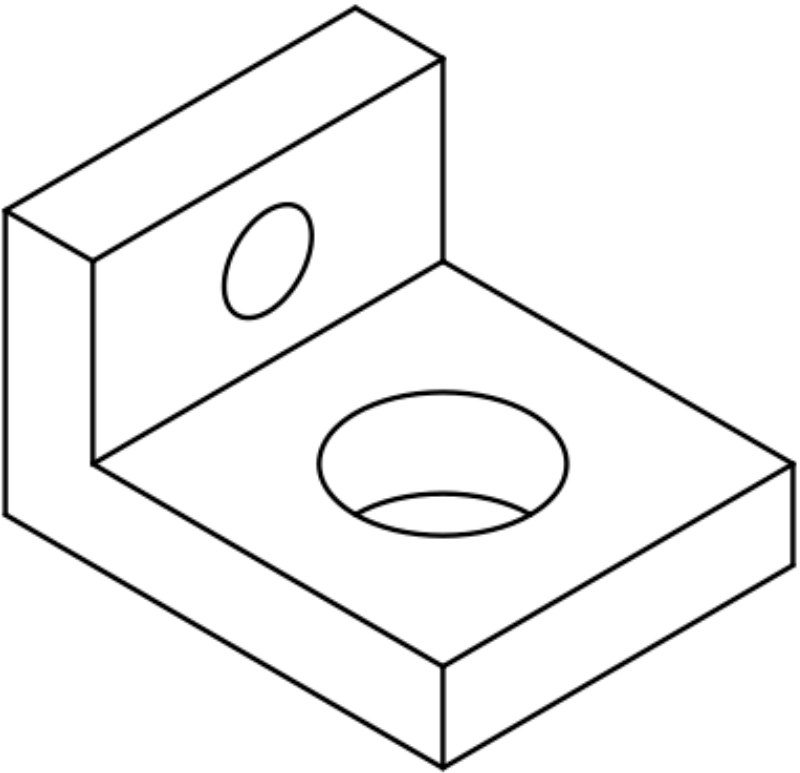
cm = 公分

mm = 公釐/毫米

三視圖的概念：從空間直角座標三個軸向檢視一個物體，所得到的三個視面物體的平面描述，可以構成這個物件的立體圖像(可從透視圖切換至正投影立體圖看看)


(Tinkercad 和 Onshape 都有 iPad 版，平板的觸控操作和桌機的滑鼠操作有些不同，搭配觸控筆有不一樣的操作方式，有興趣的同學可以試試)

加分題：尺寸比例自己抓，但是畫滿至少半頁

2		1	
B			
2?		3?	
1?			
A		A	
2		1	


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DIMENSIONS ARE IN MILLIMETERS

ANGULAR = ± °

SURFACE FINISH 

DO NOT SCALE DRAWING

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THIRD ANGLE PROJECTION 

	NAME	DATE
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CHECKED		
APPROVED		
MATERIAL	FINISH	

TITLE
Tinkercad
製圖入門
作業練習

SIZE
A

DWG NO.
樣件 1

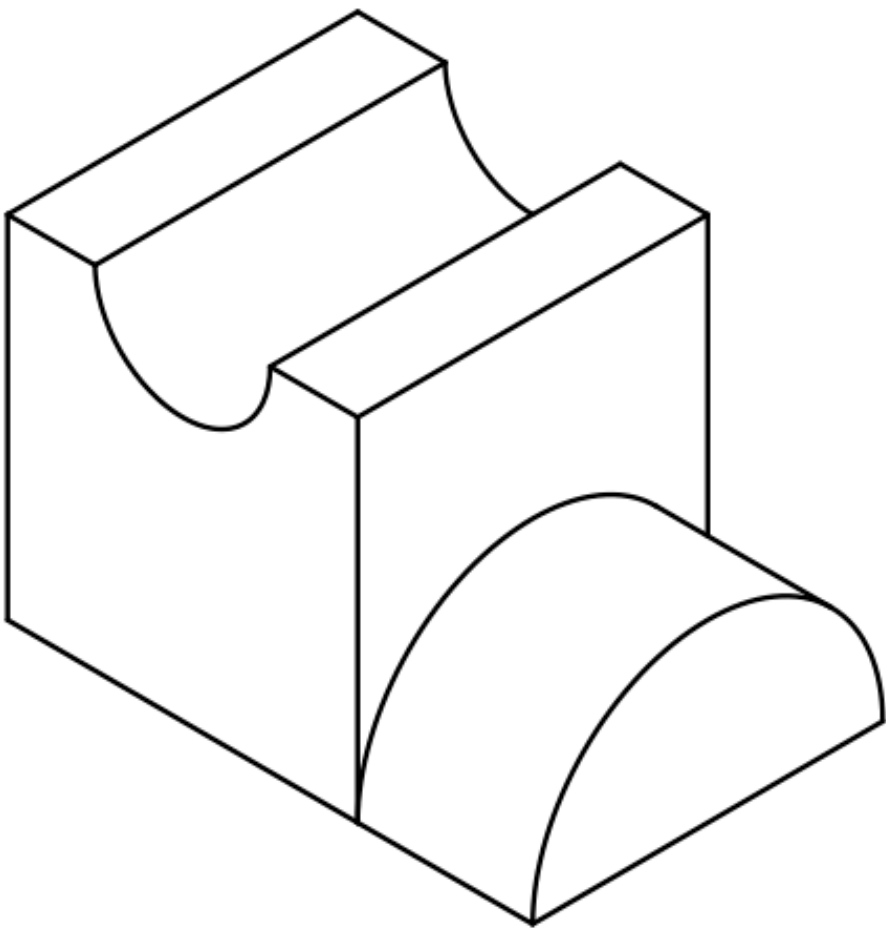
REV.

SCALE
1:1

WEIGHT


SHEET
1 of 1

加分題：尺寸比例自己抓，但是畫滿至少半頁

2		1			
B				B	
2?		3?		A	
1?				A	
2		1			

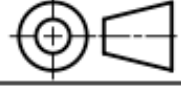
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SURFACE FINISH 

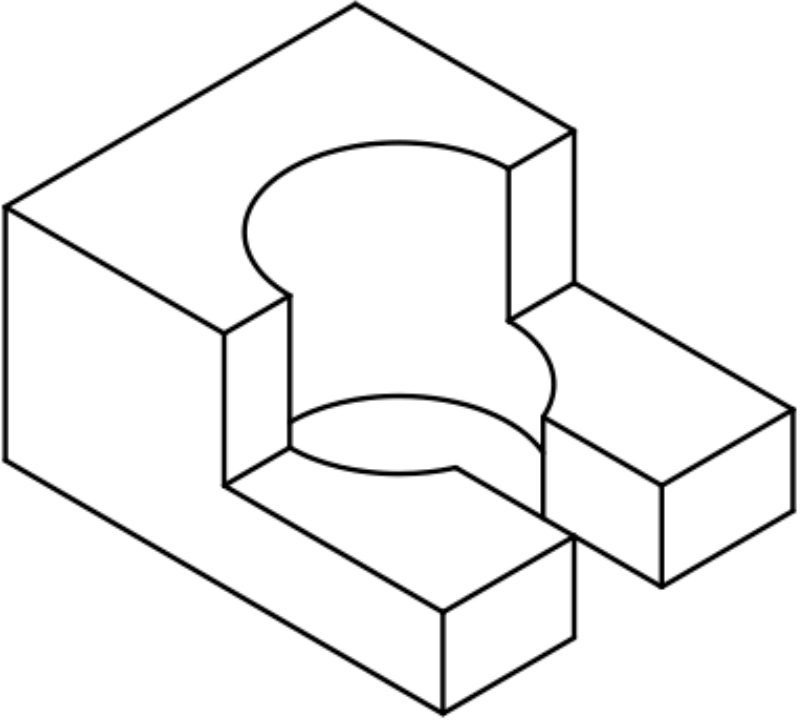

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BREAK ALL SHARP EDGES AND
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THIRD ANGLE PROJECTION 


	NAME	DATE
DRAWN	ELTON HUANG	09/11/2020
CHECKED		
APPROVED		
TITLE		
Tinkercad 製圖入門 作業練習		
SIZE	DWG NO.	REV.
A	樣件 2	
SCALE	1:1	WEIGHT
		SHEET 1 of 1

加分題：尺寸比例自己抓，但是畫滿至少半頁

2		1			
B				B	
2?		1?		3?	
A				A	
2		1			

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SURFACE FINISH 

DO NOT SCALE DRAWING

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THIRD ANGLE PROJECTION

	NAME	DATE
DRAWN	ELTON HUANG	09/11/2020
CHECKED		
APPROVED		
MATERIAL	FINISH	

TITLE

Tinkercad
製圖入門
作業練習

SIZE
A

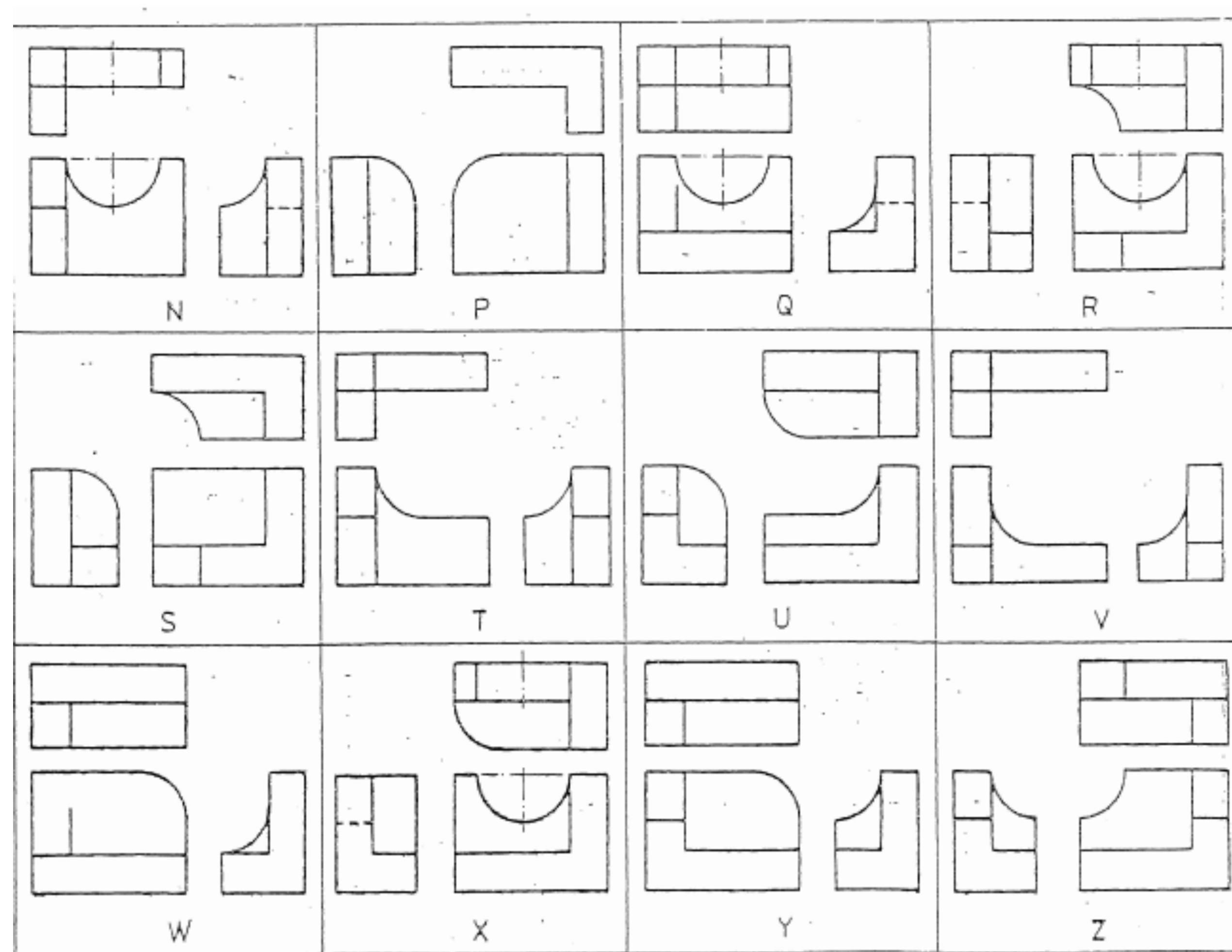
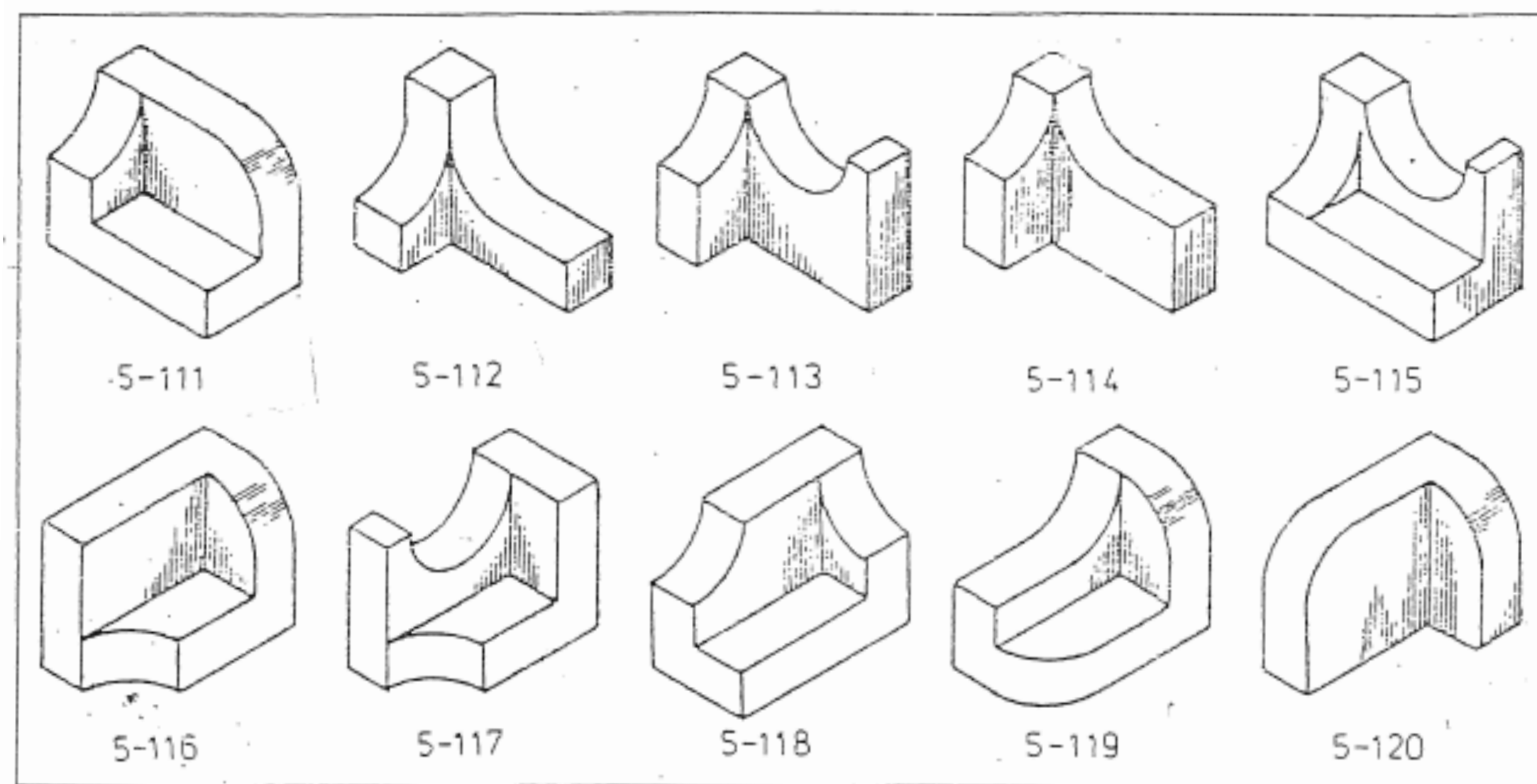
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REV.

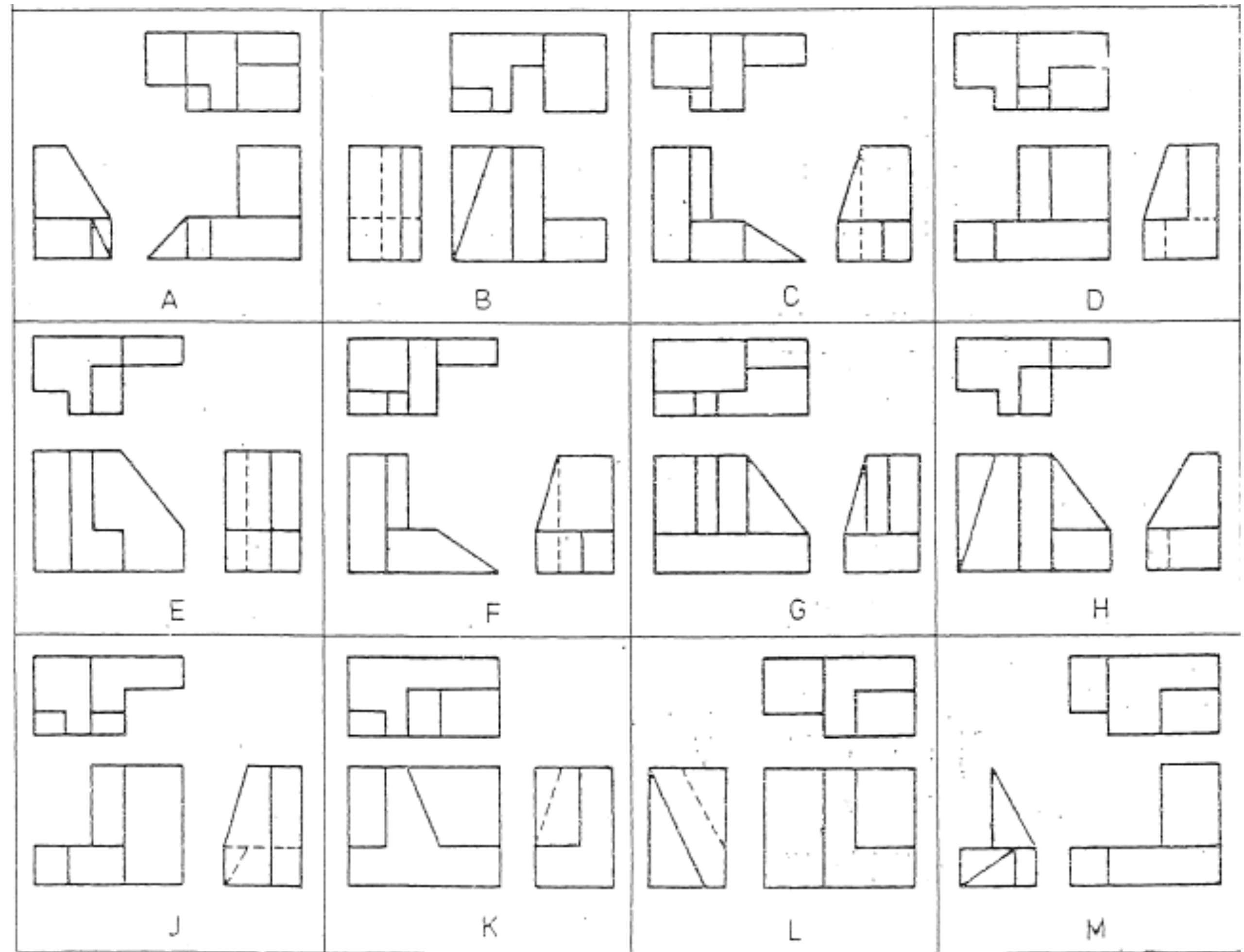
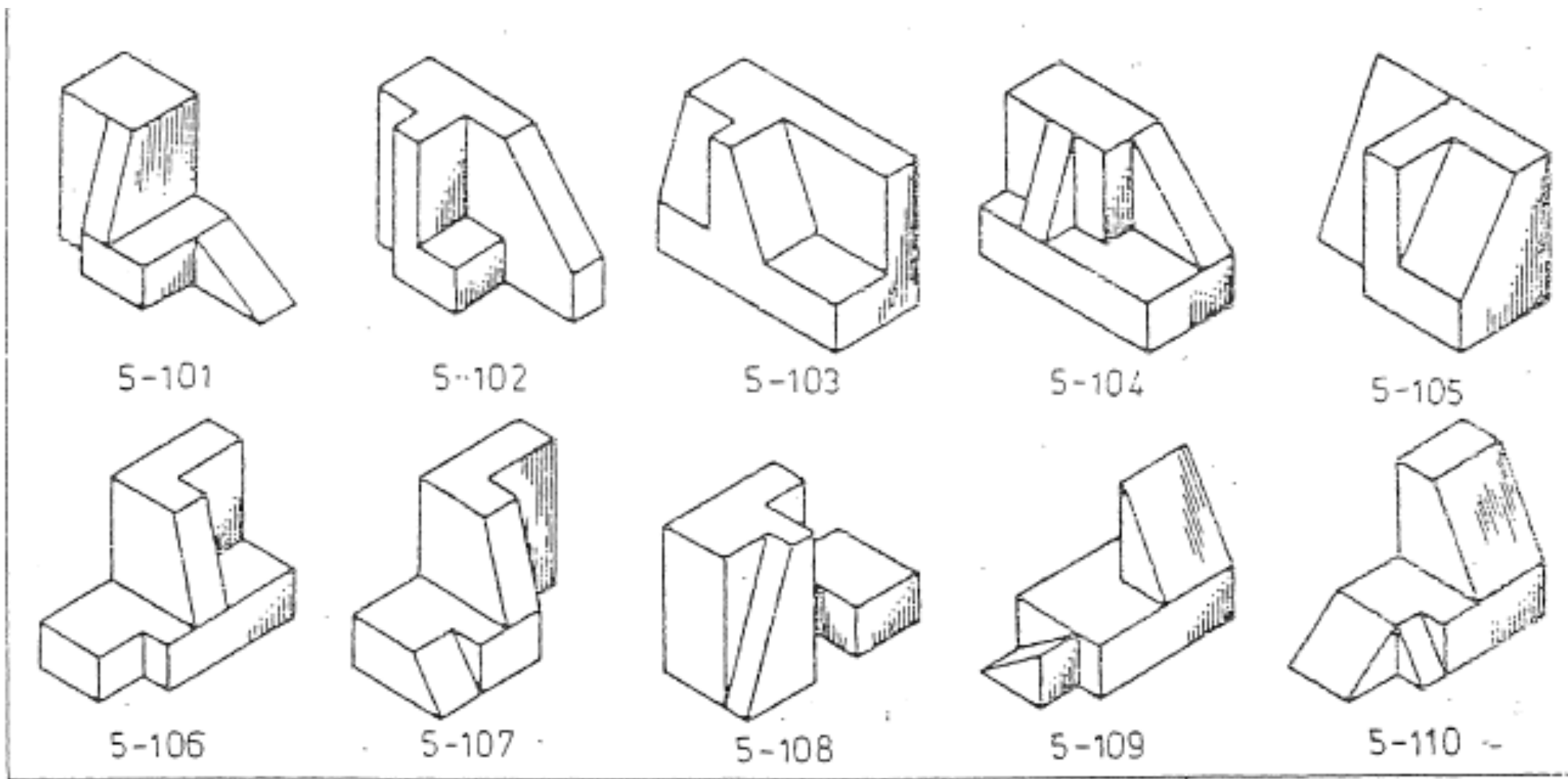
SCALE
1:1

WEIGHT

SHEET
1 of 1



練習 1



練習 2

更多練習 ...

2

1

B

A

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ANGULAR = ± °

SURFACE FINISH ✓

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BREAK ALL SHARP EDGES AND
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THIRD ANGLE PROJECTION

DRAWN

CHECKED

APPROVED

NAME

ELTON HUANG

DATE

08/20/2022

TITLE

SIZE

A

DWG NO.

REV.

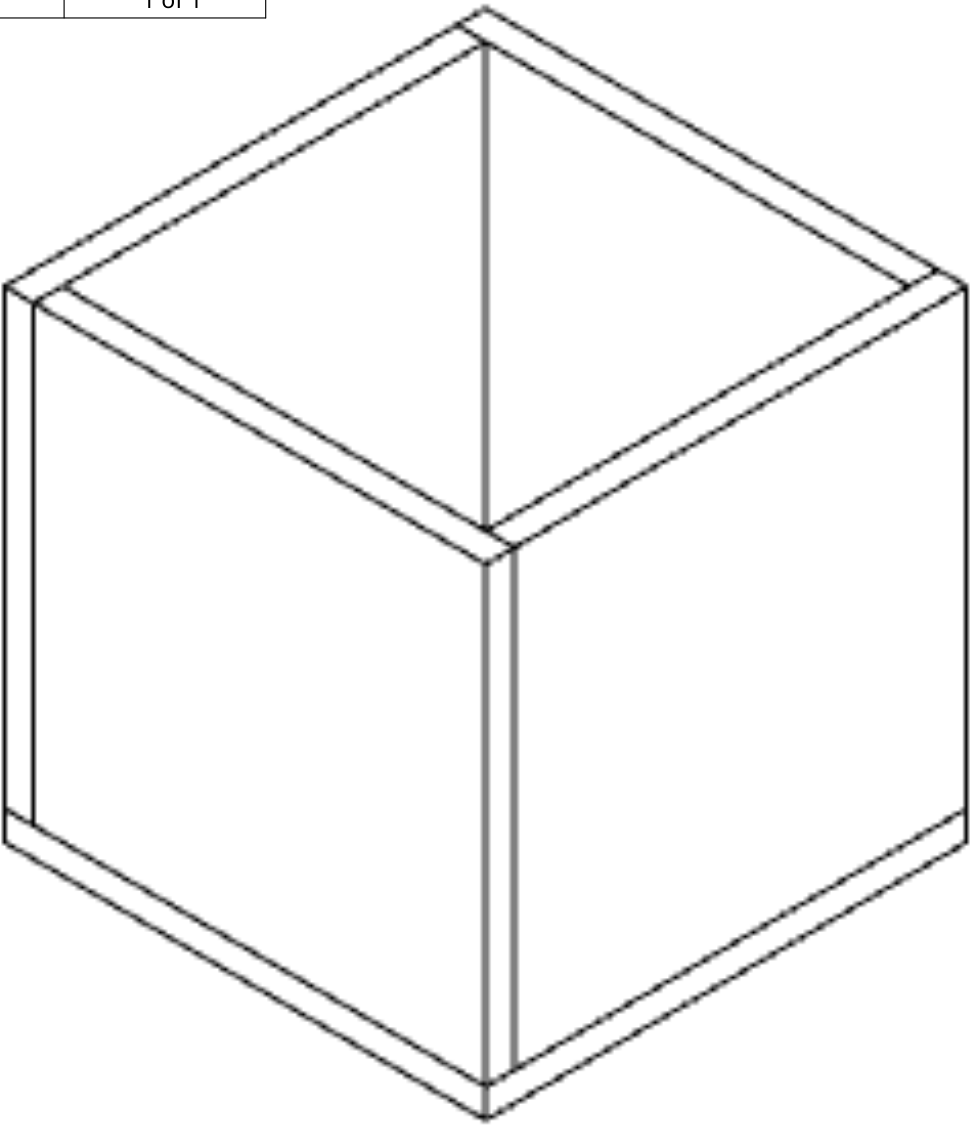
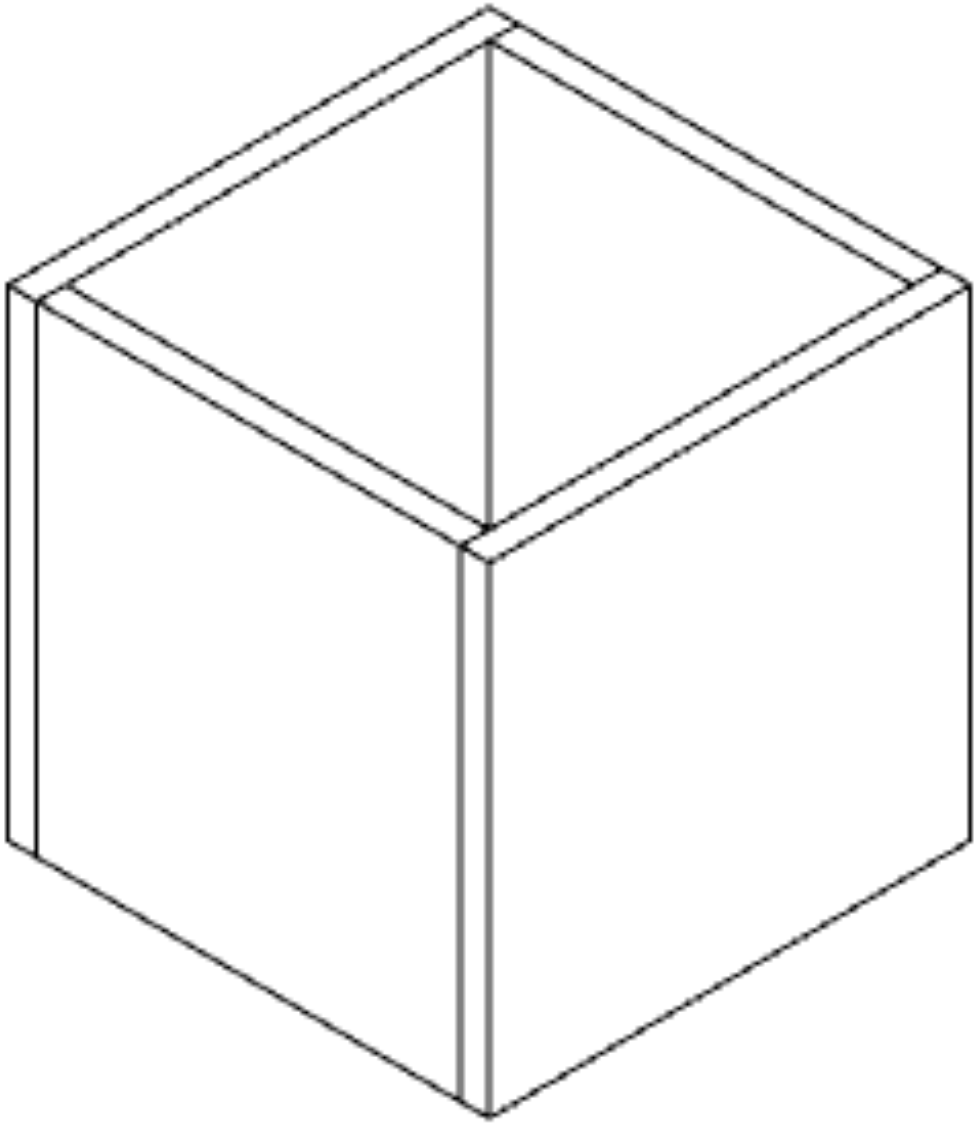
SCALE

1:1

WEIGHT

SHEET

1 of 1



2

1

B

A

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THIRD ANGLE PROJECTION

DRAWN

CHECKED

APPROVED

NAME

ELTON HUANG

DATE

08/20/2022

TITLE

SIZE

A

DWG NO.

REV.

SCALE

1:1

WEIGHT

SHEET

1 of 1

練習：建模所需的版型

