

工程視圖 (三視圖)

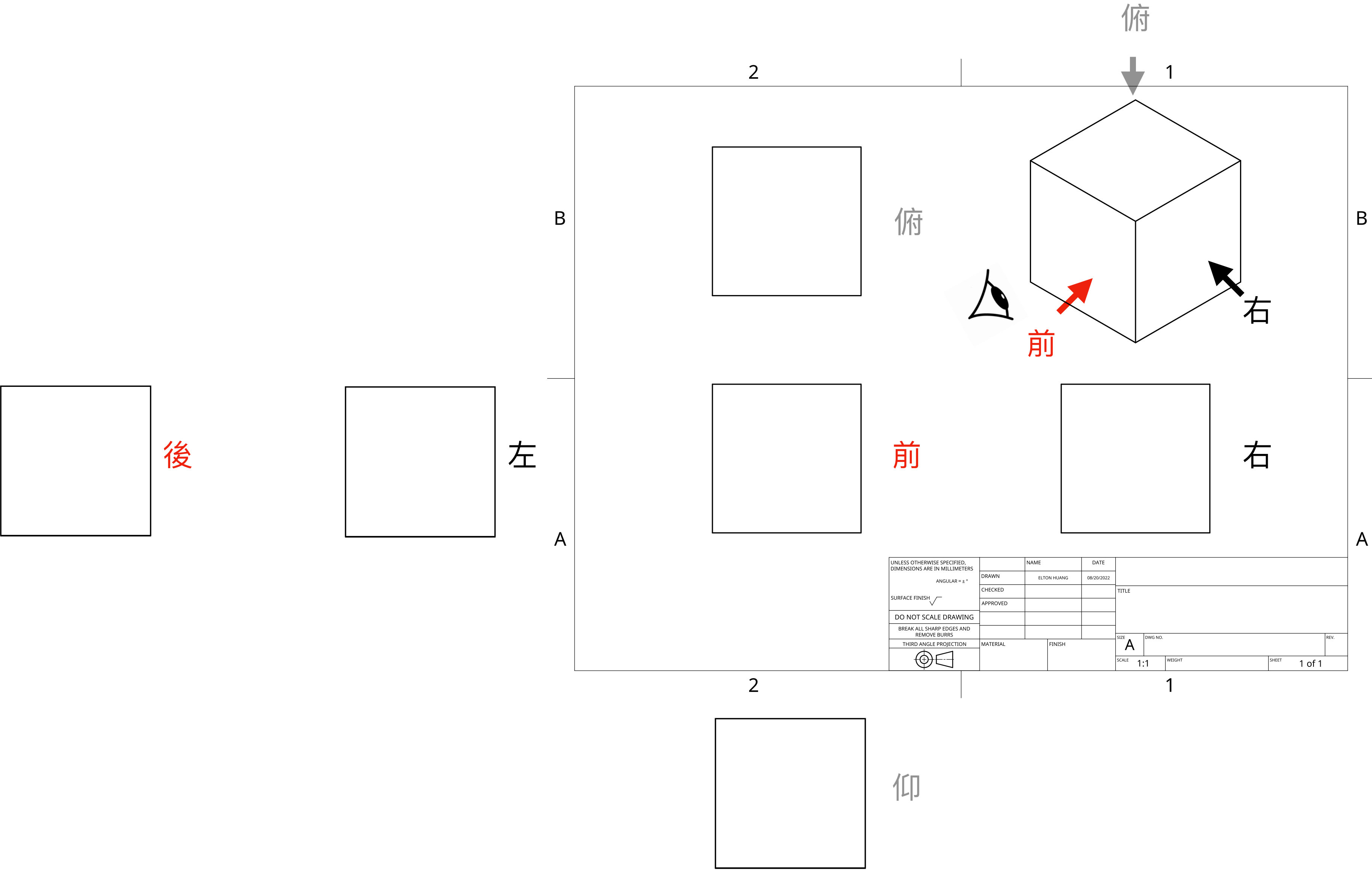
2022 (C) Elton Huang 黃敦紀

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

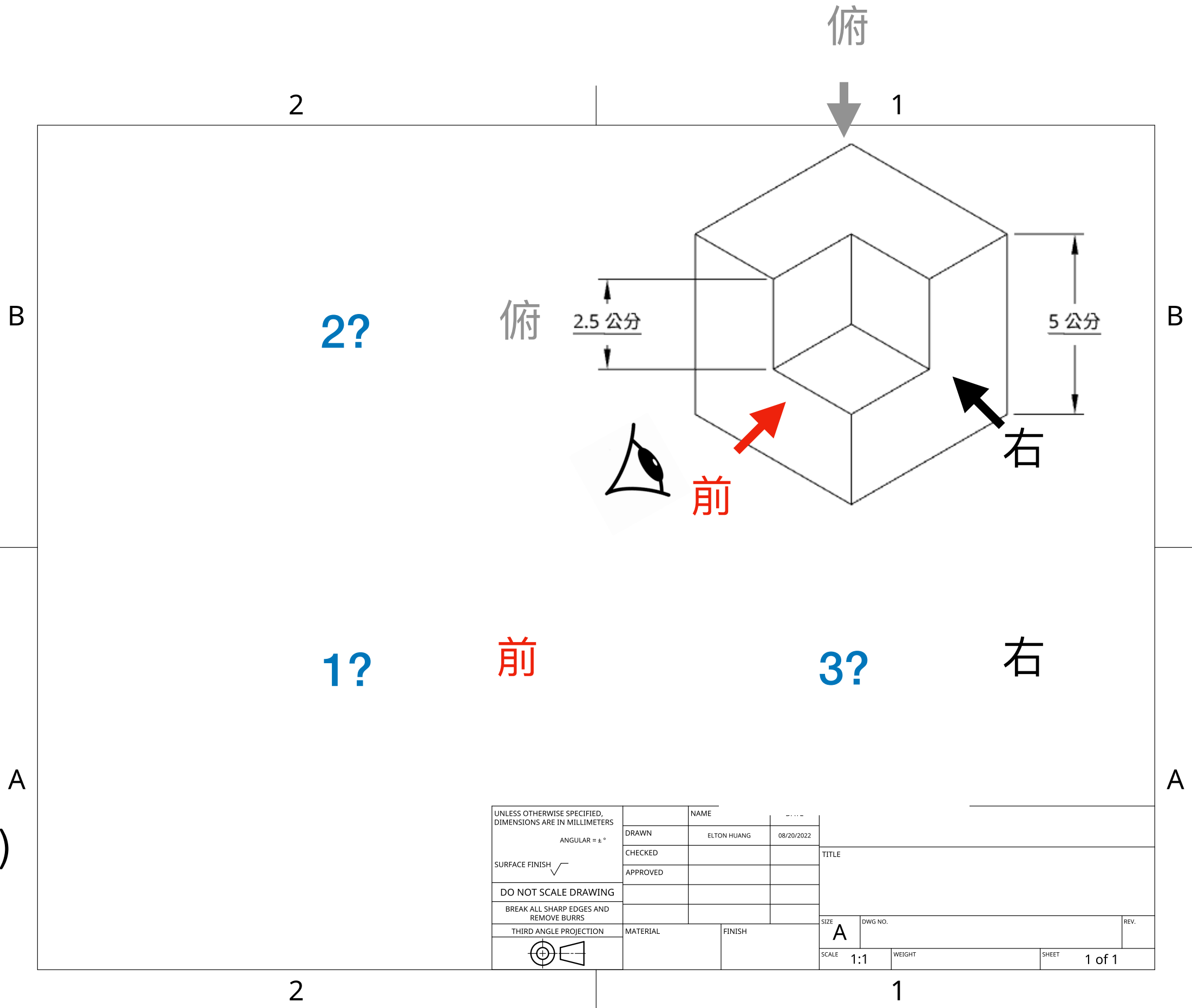
4?

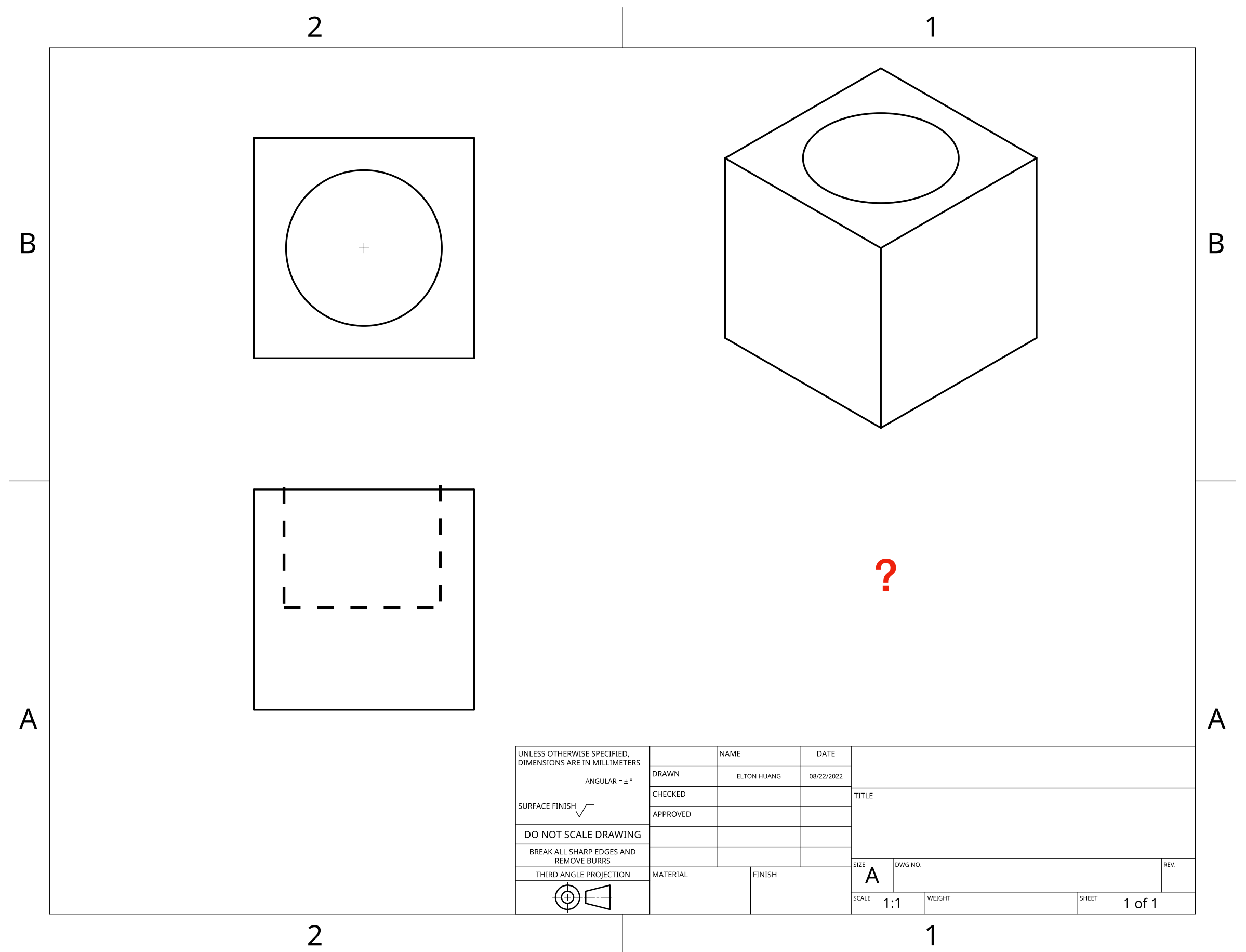
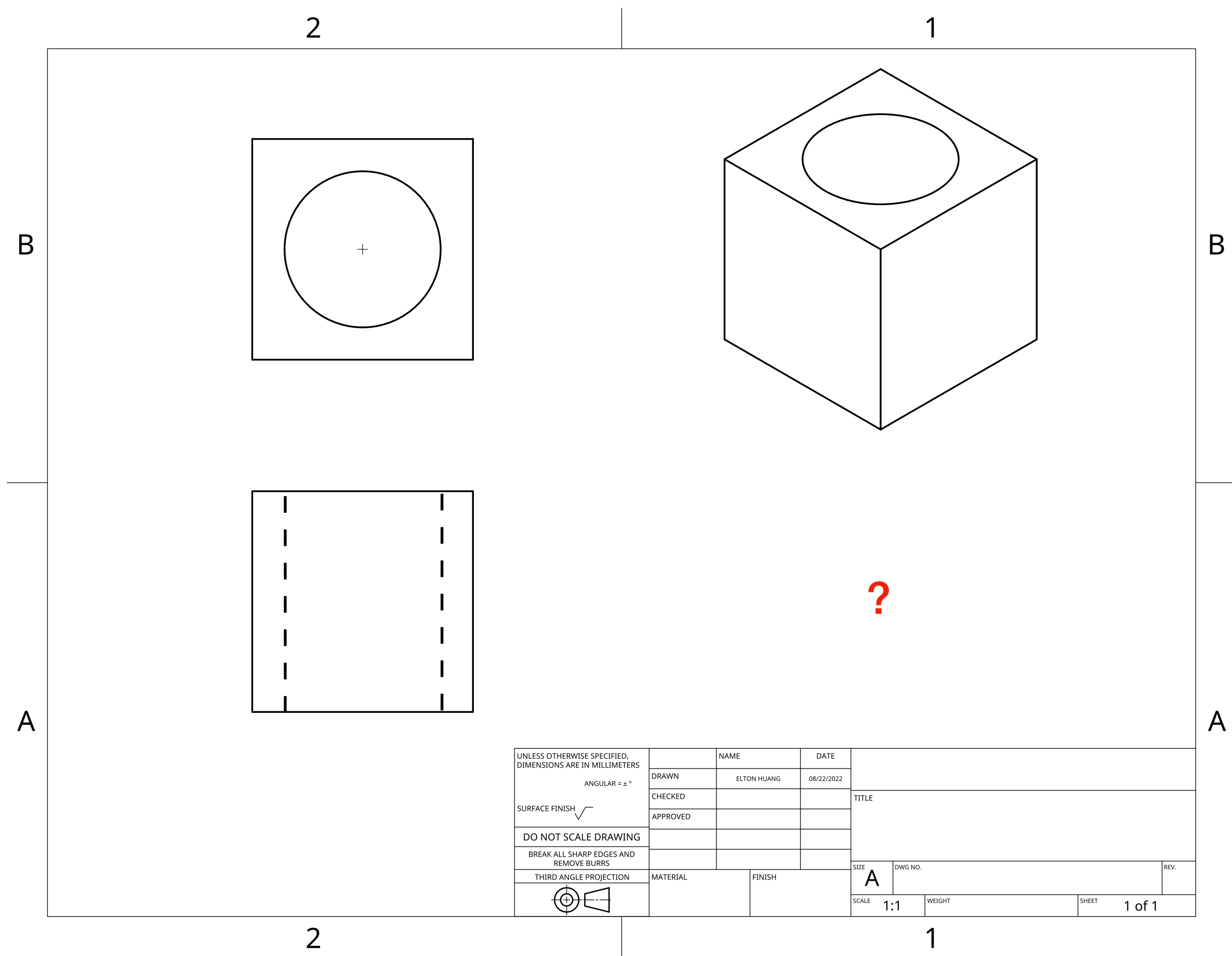
左

(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)





2

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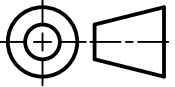
B

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1

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH 	DRAWN	ELTON HUANG	08/22/2022	TITLE		
	CHECKED					
	APPROVED					
	DO NOT SCALE DRAWING				SIZE	A
BREAK ALL SHARP EDGES AND REMOVE BURRS				DWG NO.		REV.
THIRD ANGLE PROJECTION 	MATERIAL		FINISH		SCALE 1:1	
					WEIGHT	SHEET 1 of 1

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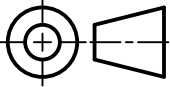
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ANGULAR = ± °

SURFACE FINISH 

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THIRD ANGLE PROJECTION 

DRAWN

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APPROVED

MATERIAL

NAME

ELTON HUANG

FINISH

DATE

08/22/2022

SIZE

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DWG NO.

REV.

SCALE

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WEIGHT

SHEET

1 of 1

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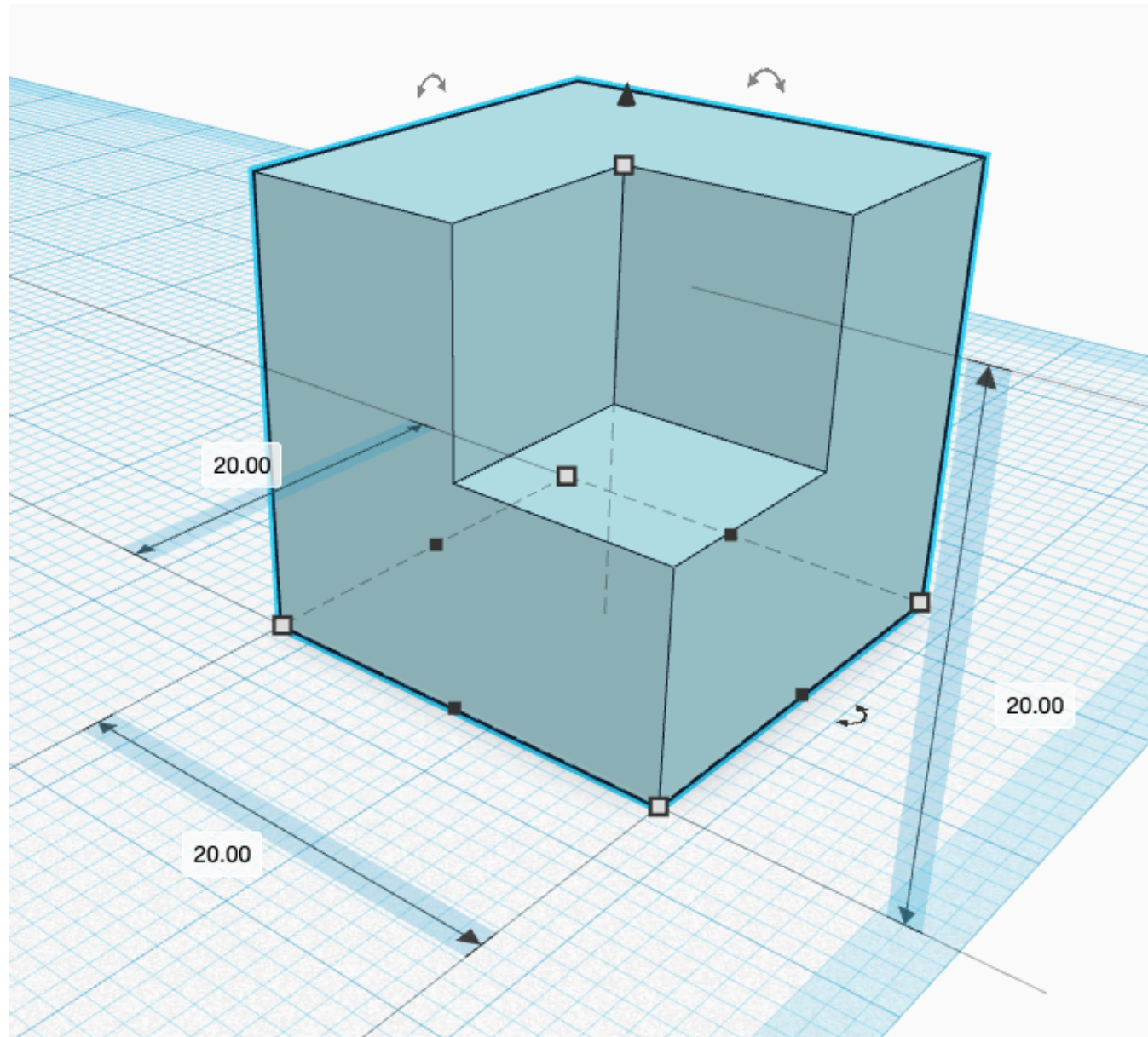
A

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UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH √	DRAWN	ELTON HUANG	08/22/2022	TITLE				
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	APPROVED							
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THIRD ANGLE PROJECTION	MATERIAL		FINISH					

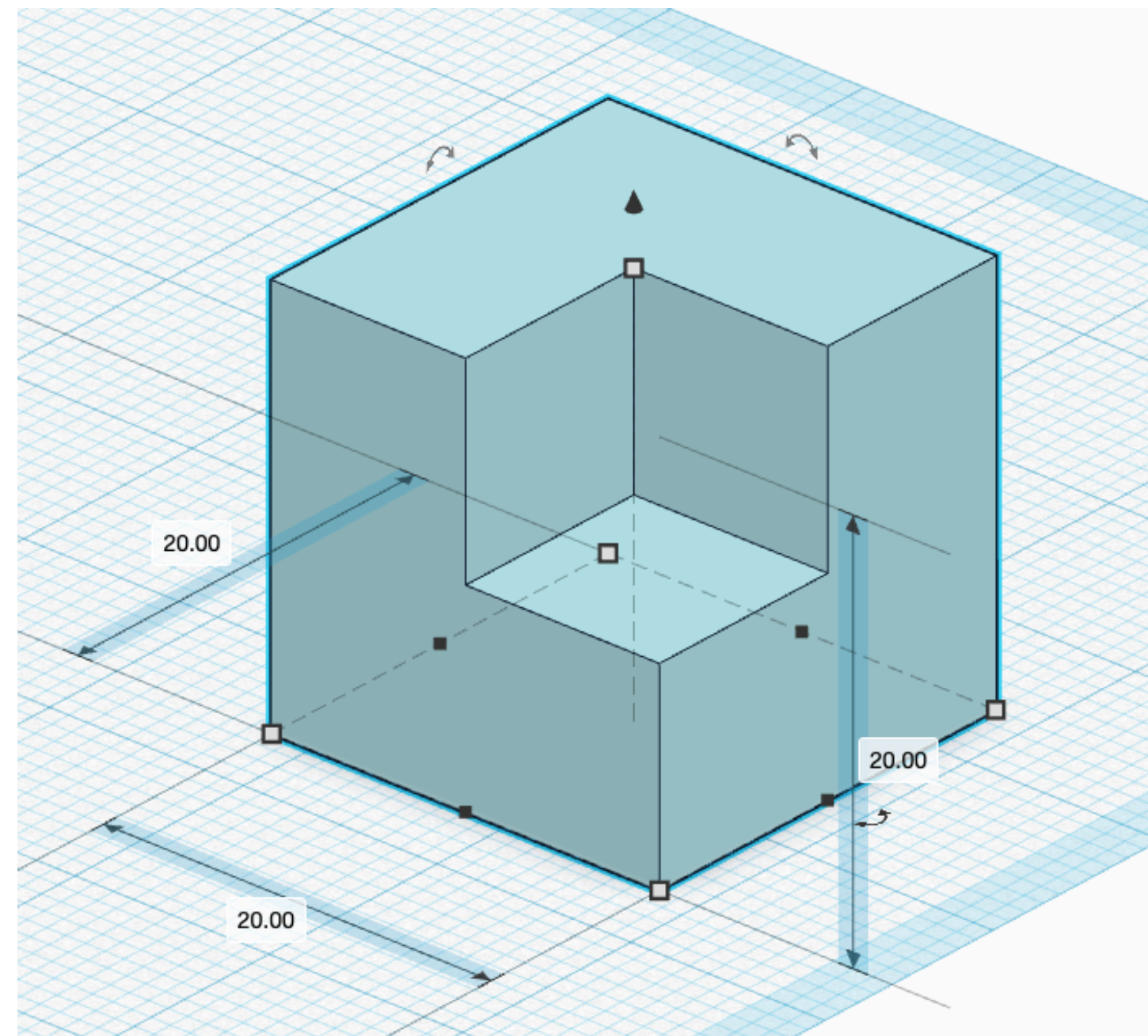
在二維平面呈現三維立體物件的 3 種方式



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)

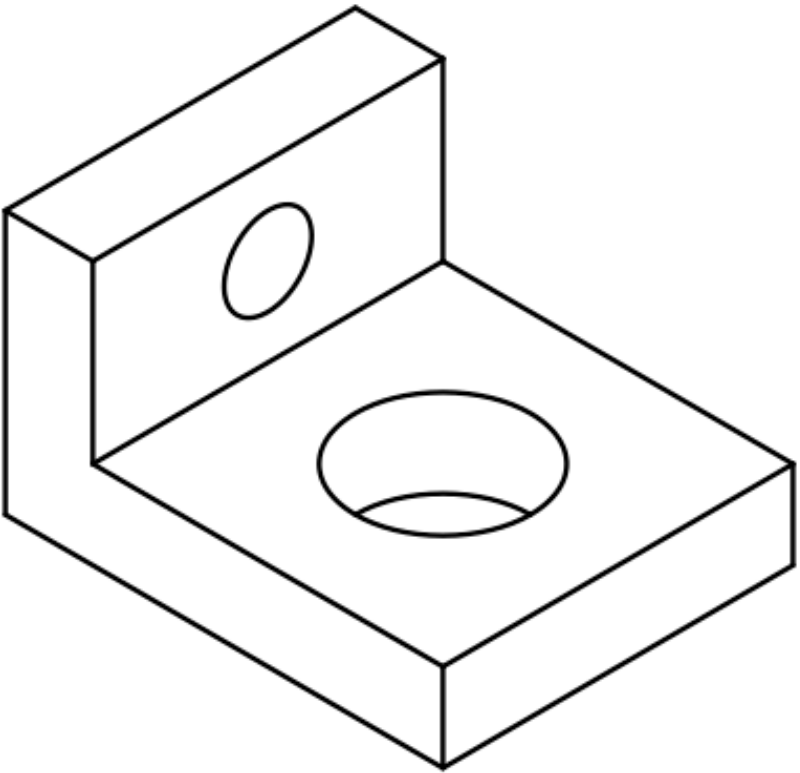


三視圖

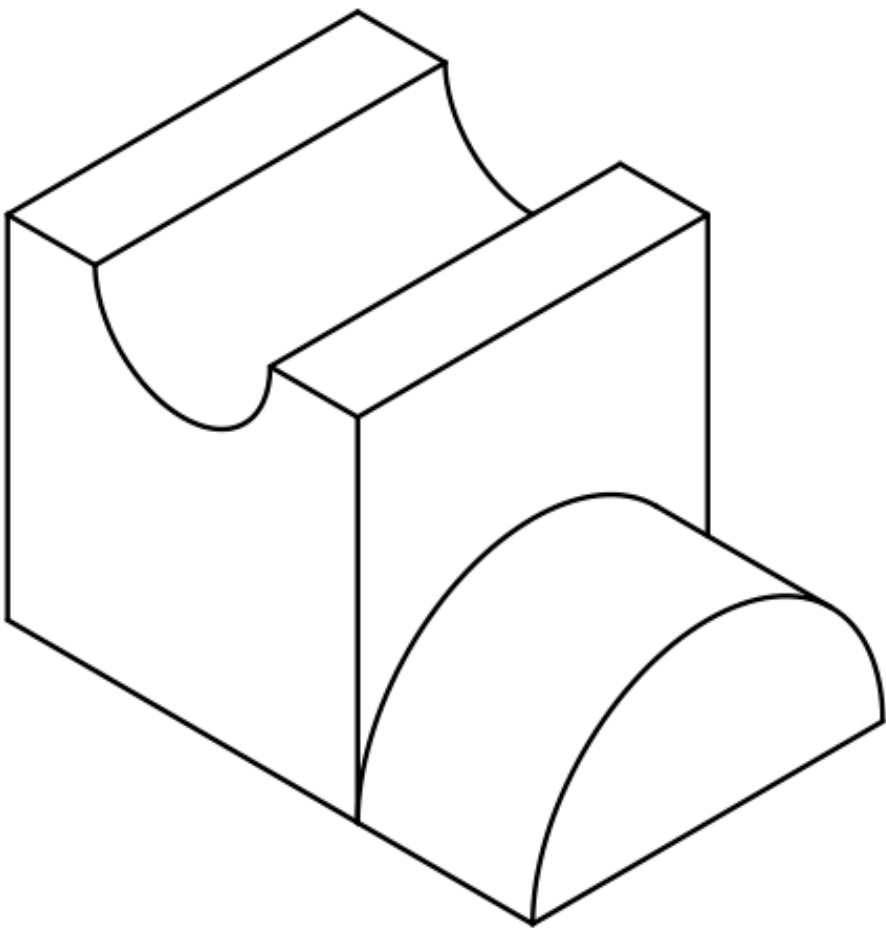

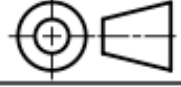
三個視角所看到的成像
決定該物件確切的立體形狀
(對立面才看得到的線畫成虛線)

(同一個物件從前面看) (同一個物件從右面看)

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)

2		1																																
B	2?		B																															
A	1?	3?	A																															
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<div>UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS</div> <div>ANGULAR = ± °</div> <div>SURFACE FINISH </div> <div>DO NOT SCALE DRAWING</div> <div>BREAK ALL SHARP EDGES AND REMOVE BURRS</div> <div>THIRD ANGLE PROJECTION </div>		<table><tr><td></td><td>NAME</td><td>DATE</td></tr><tr><td>DRAWN</td><td>ELTON HUANG</td><td>09/11/2020</td></tr><tr><td>CHECKED</td><td></td><td></td></tr><tr><td>APPROVED</td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table> <table><tr><td>MATERIAL</td><td>FINISH</td></tr><tr><td></td><td></td></tr></table>		NAME	DATE	DRAWN	ELTON HUANG	09/11/2020	CHECKED			APPROVED									MATERIAL	FINISH			<table><tr><td colspan="3">TITLE Tinkercad 製圖入門 作業練習</td></tr><tr><td>SIZE A</td><td>DWG NO. 樣件 1</td><td>REV.</td></tr><tr><td>SCALE 1:1</td><td>WEIGHT</td><td>SHEET 1 of 1</td></tr></table>	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
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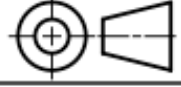
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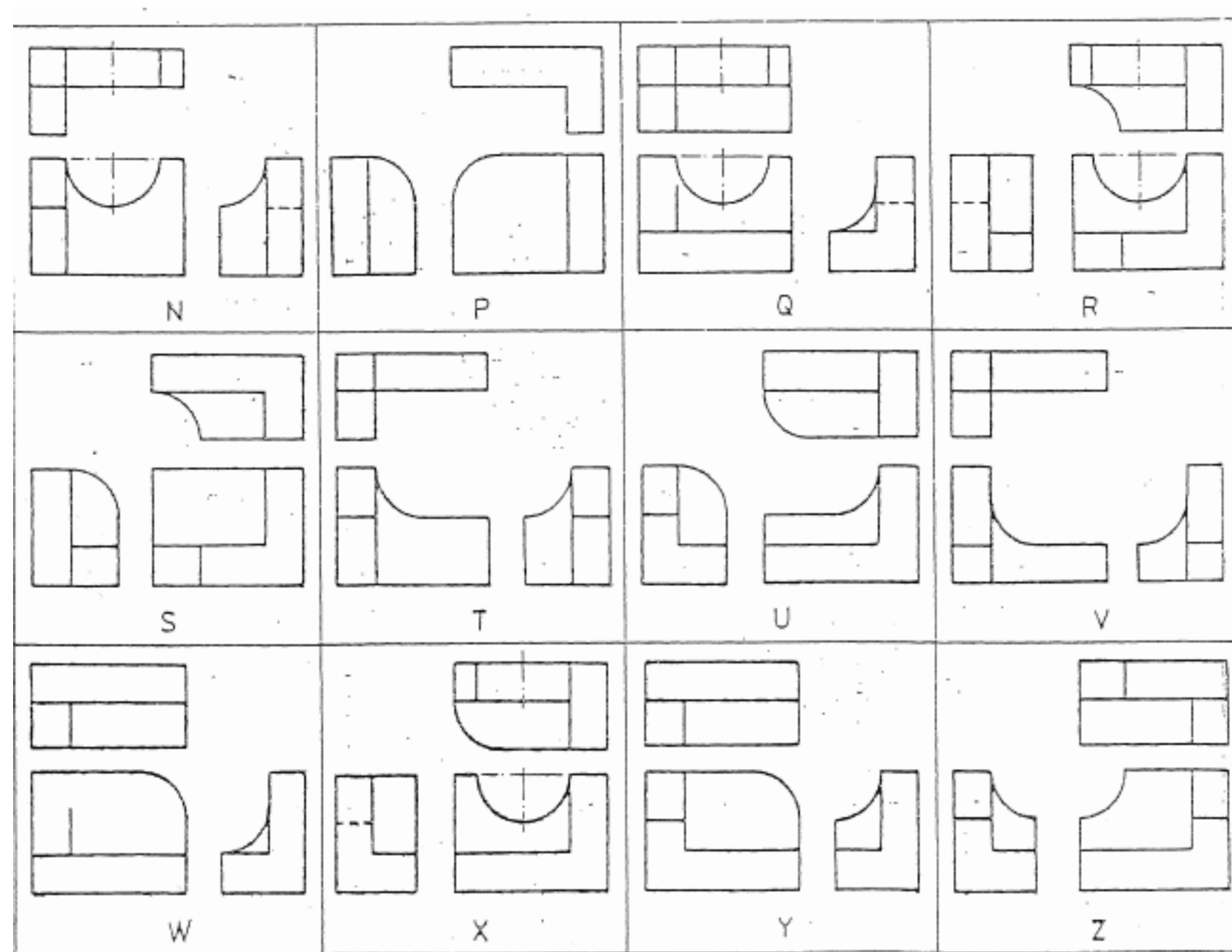
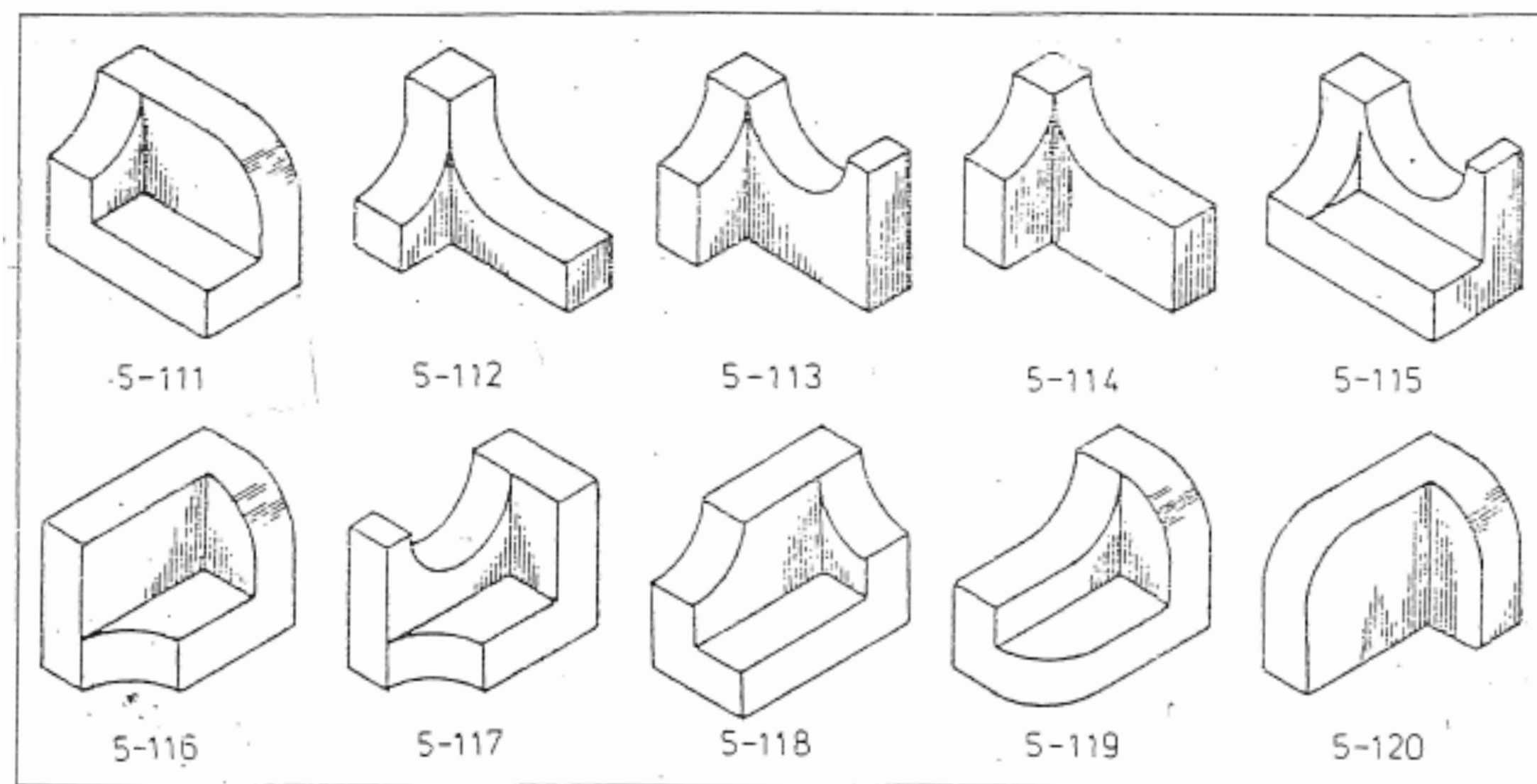
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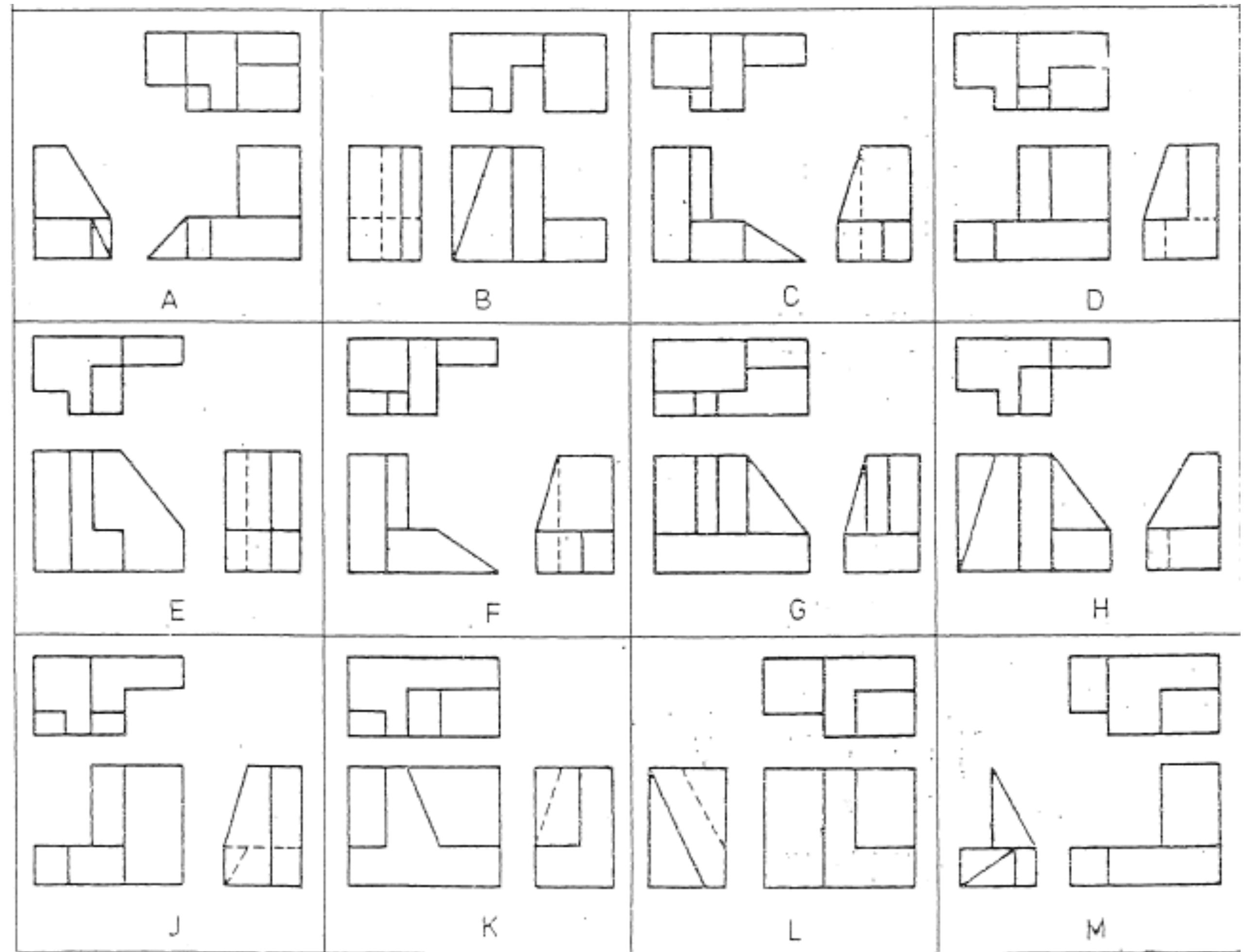
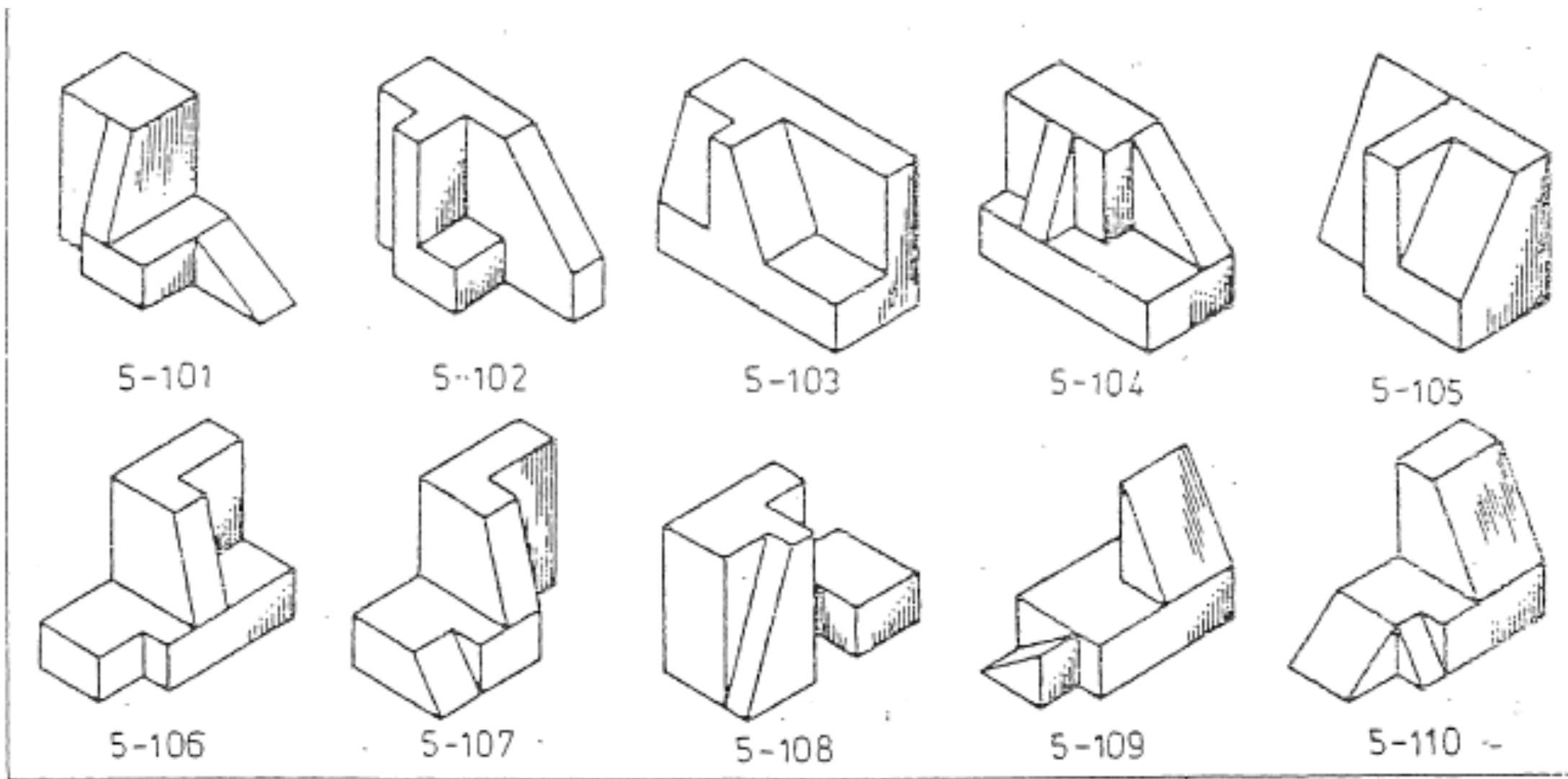
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					SIZE A	DWG NO. 樣件 3
	MATERIAL	FINISH		SCALE 1:1	WEIGHT	SHEET 1 of 1



練習 1



練習 2

更多練習 ...

2

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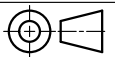
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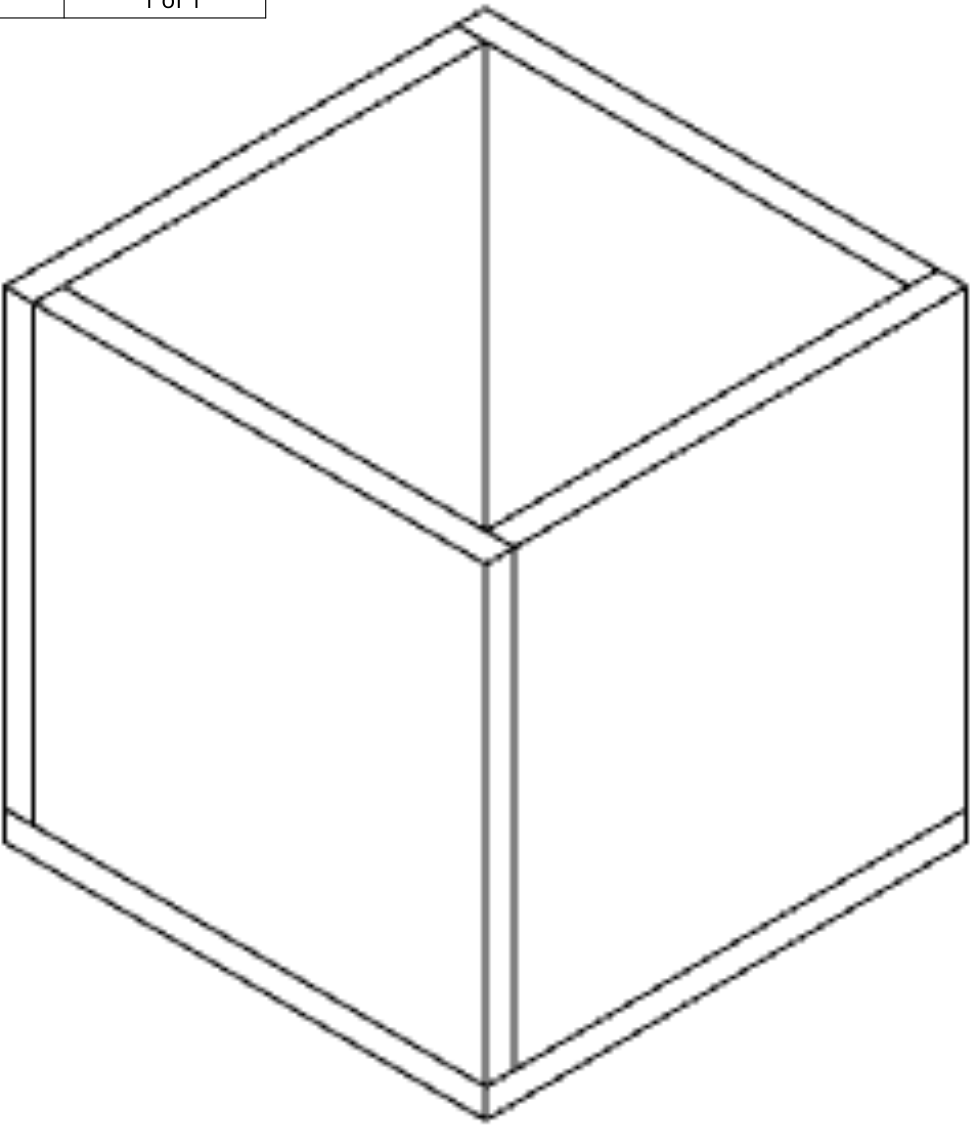
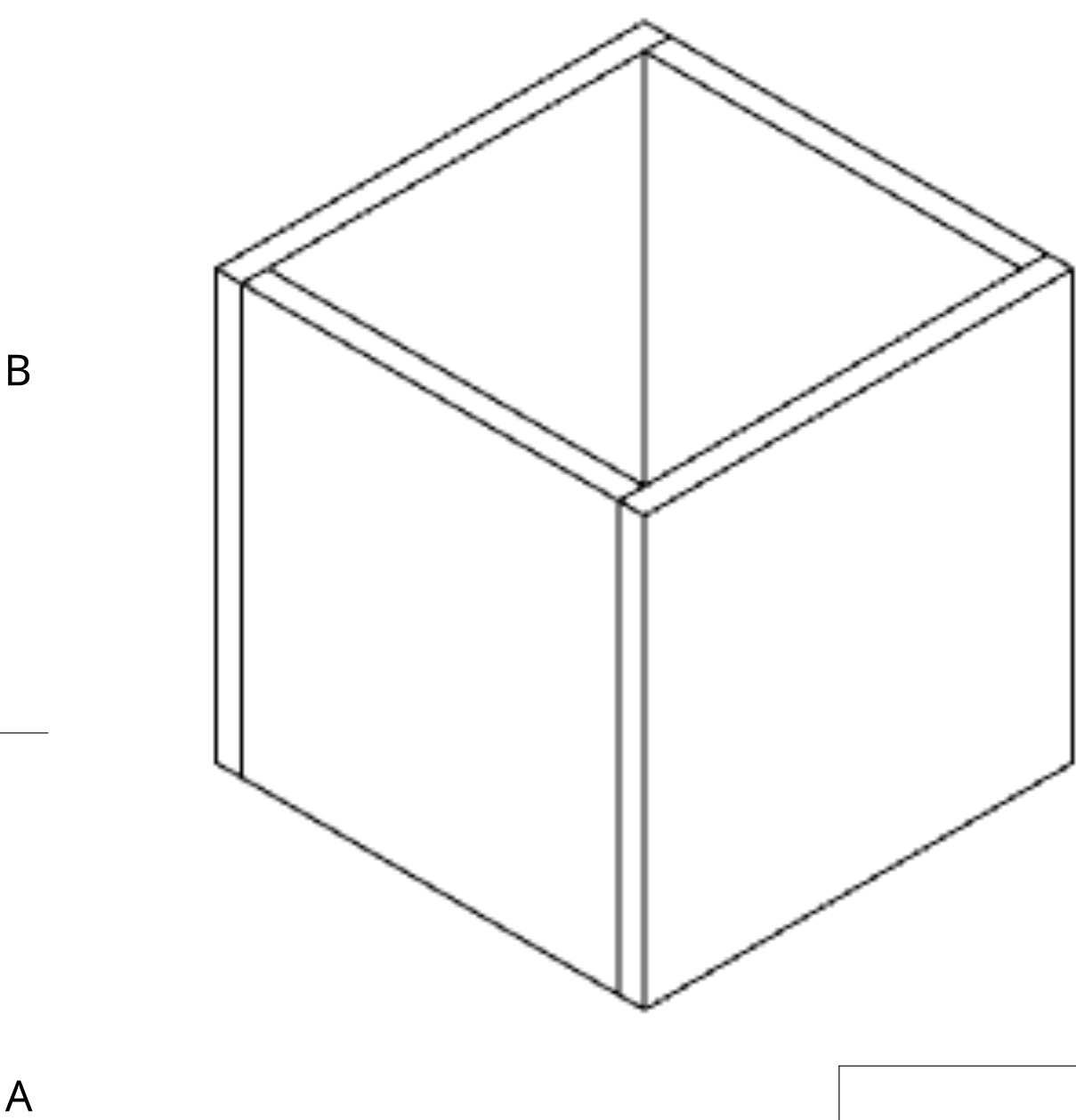
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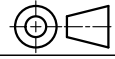
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練習：建模所需的版型

