

# 工程視圖 (三視圖)

2022 (C) Elton Huang 黃敦紀

# 工程

科學發現原理原則

工程利用科學原理原則創造出尚不存在的東西

工藝：試錯、技巧

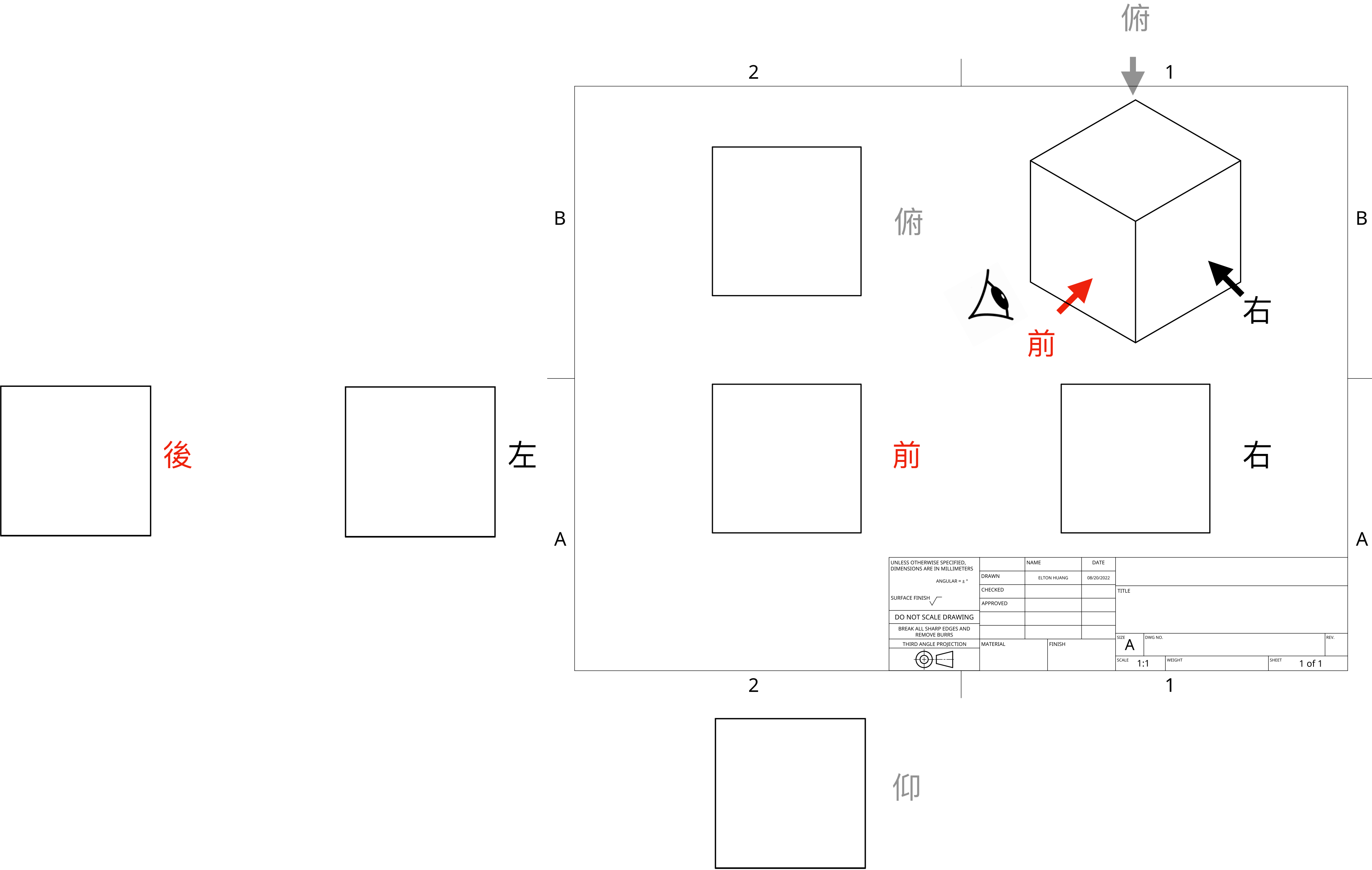
工程應用盡量標準的流程方法盡量減少  
試錯的次數以及對手工技巧熟練的依賴


扶住比薩斜塔

Honda CR-V Commercial

Oscars Commercial: Illusion with Neil Patrick Harris

展開圖



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS  ANGULAR = ± °  SURFACE FINISH √  DO NOT SCALE DRAWING  BREAK ALL SHARP EDGES AND REMOVE BURRS  THIRD ANGLE PROJECTION 	DRAWN	NAME	DATE	TITLE		
	CHECKED	ELTON HUANG	08/20/2022			
	APPROVED					
				SIZE	DWG NO.	REV.
				SCALE	1:1	WEIGHT
						SHEET 1 of 1

展開圖

(與右視對稱於分開觀察者與物件的平面)

5?

後

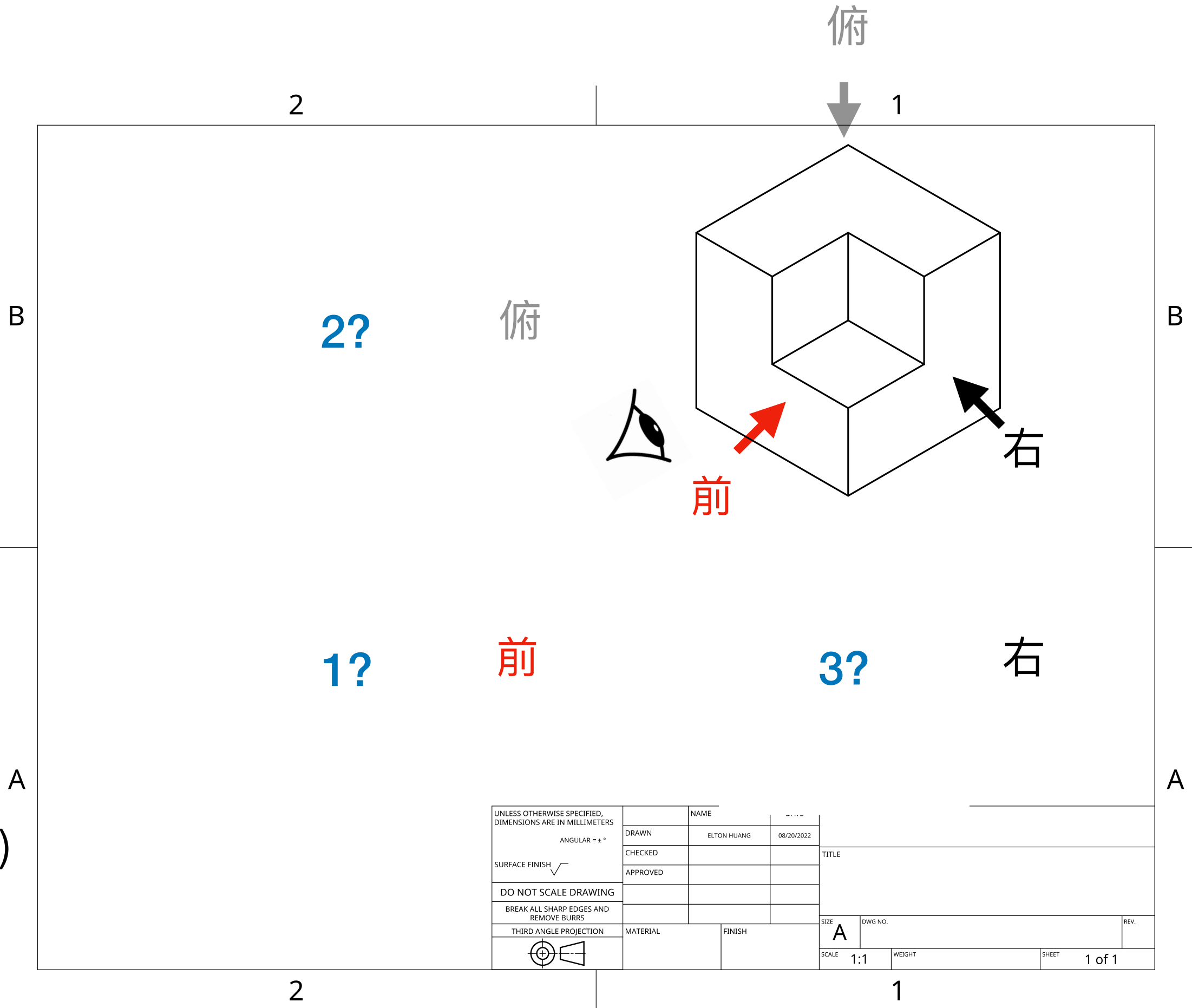
4?

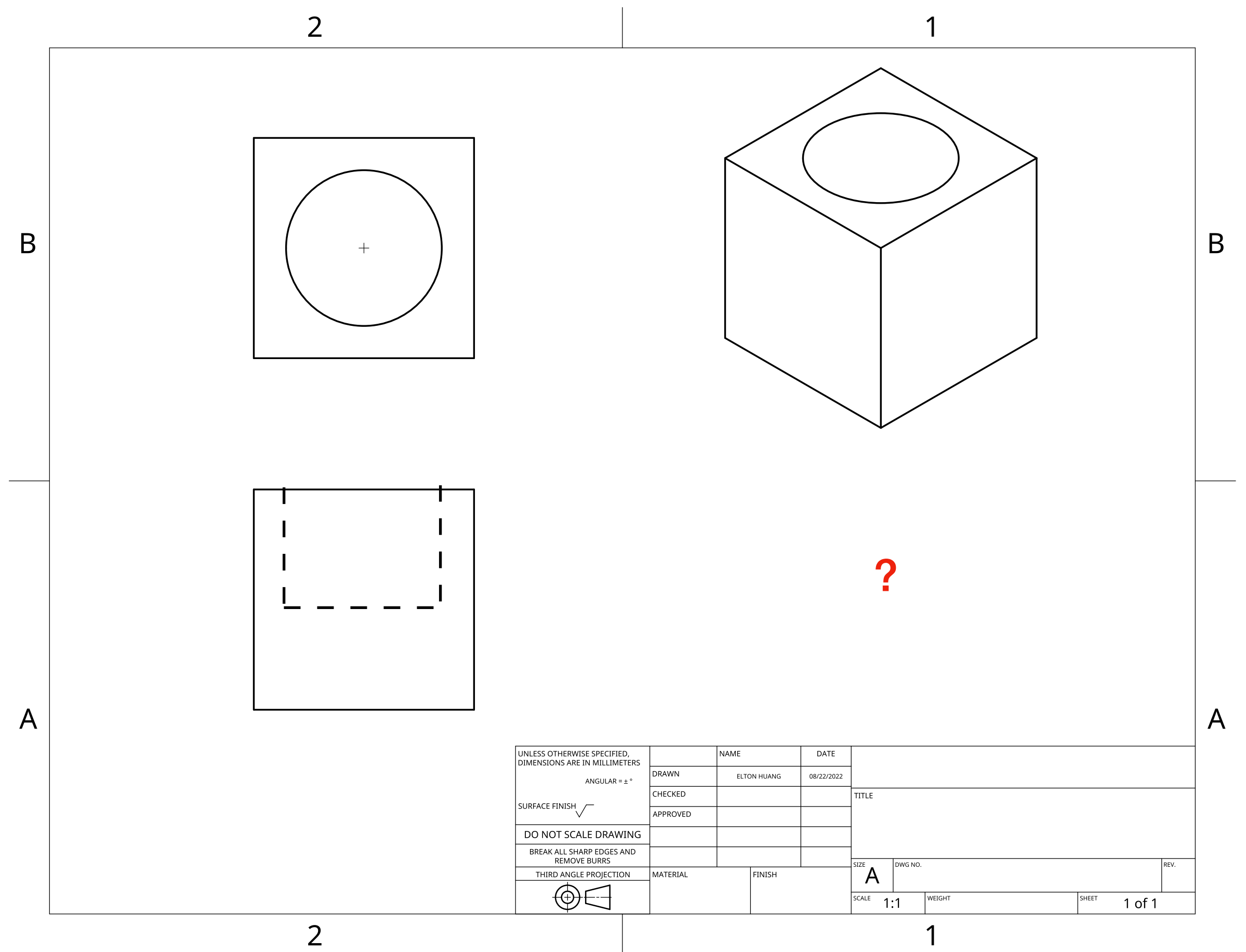
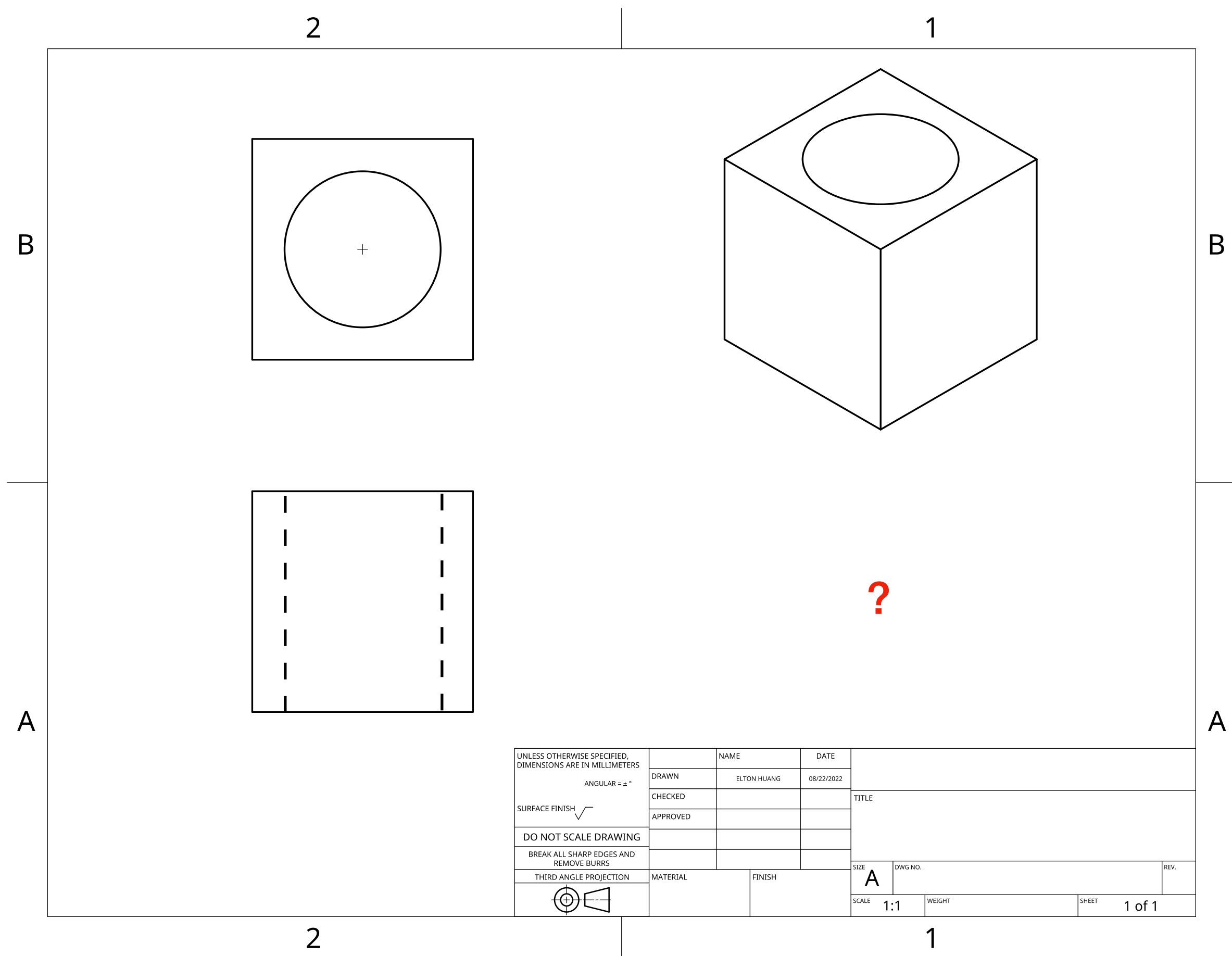
左

(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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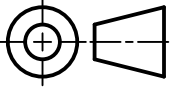
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ANGULAR = ± °

SURFACE FINISH 

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THIRD ANGLE PROJECTION 

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ELTON HUANG

DATE

08/22/2022

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UNLESS OTHERWISE SPECIFIED,  
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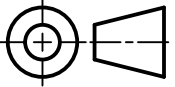
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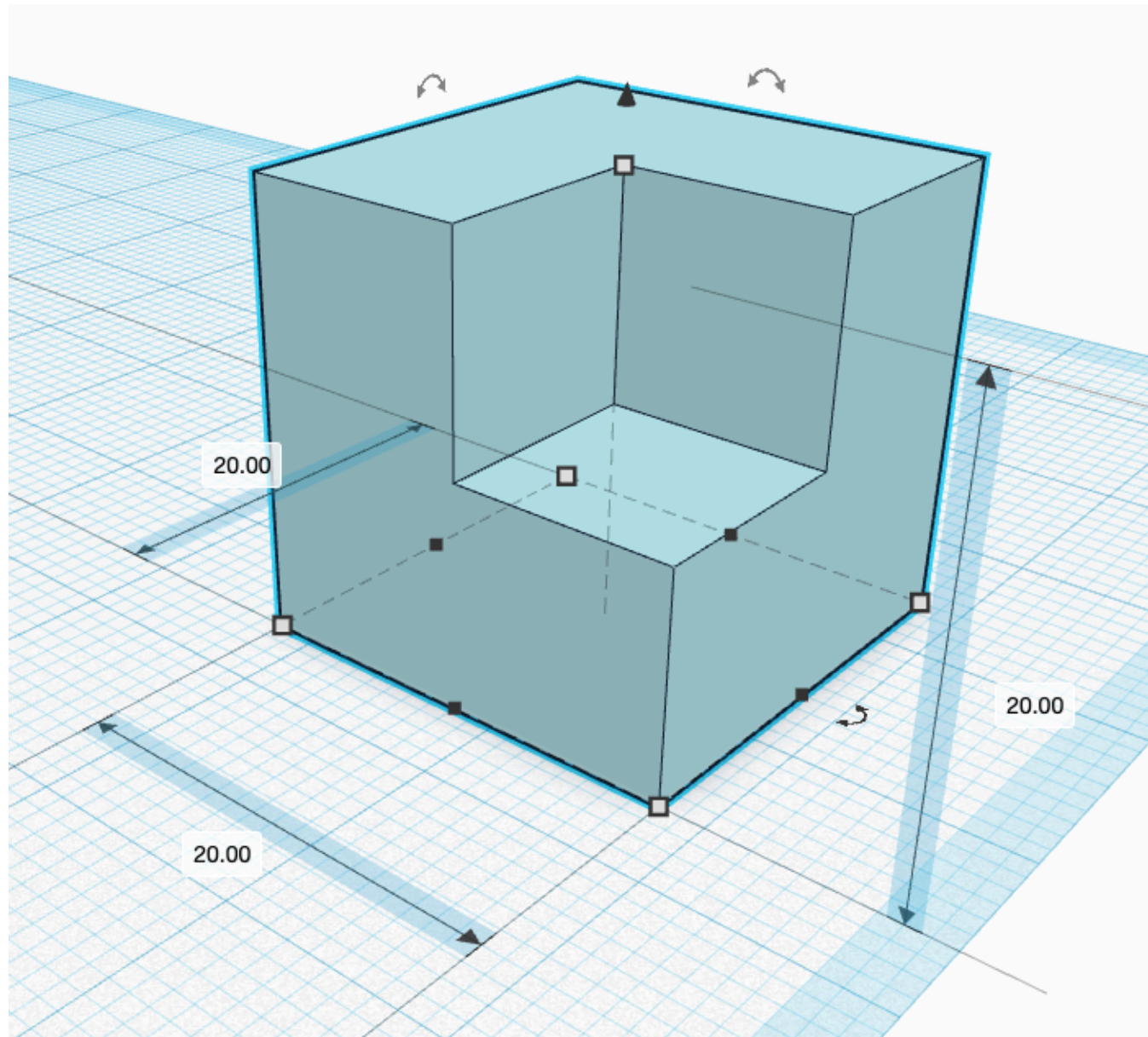
2

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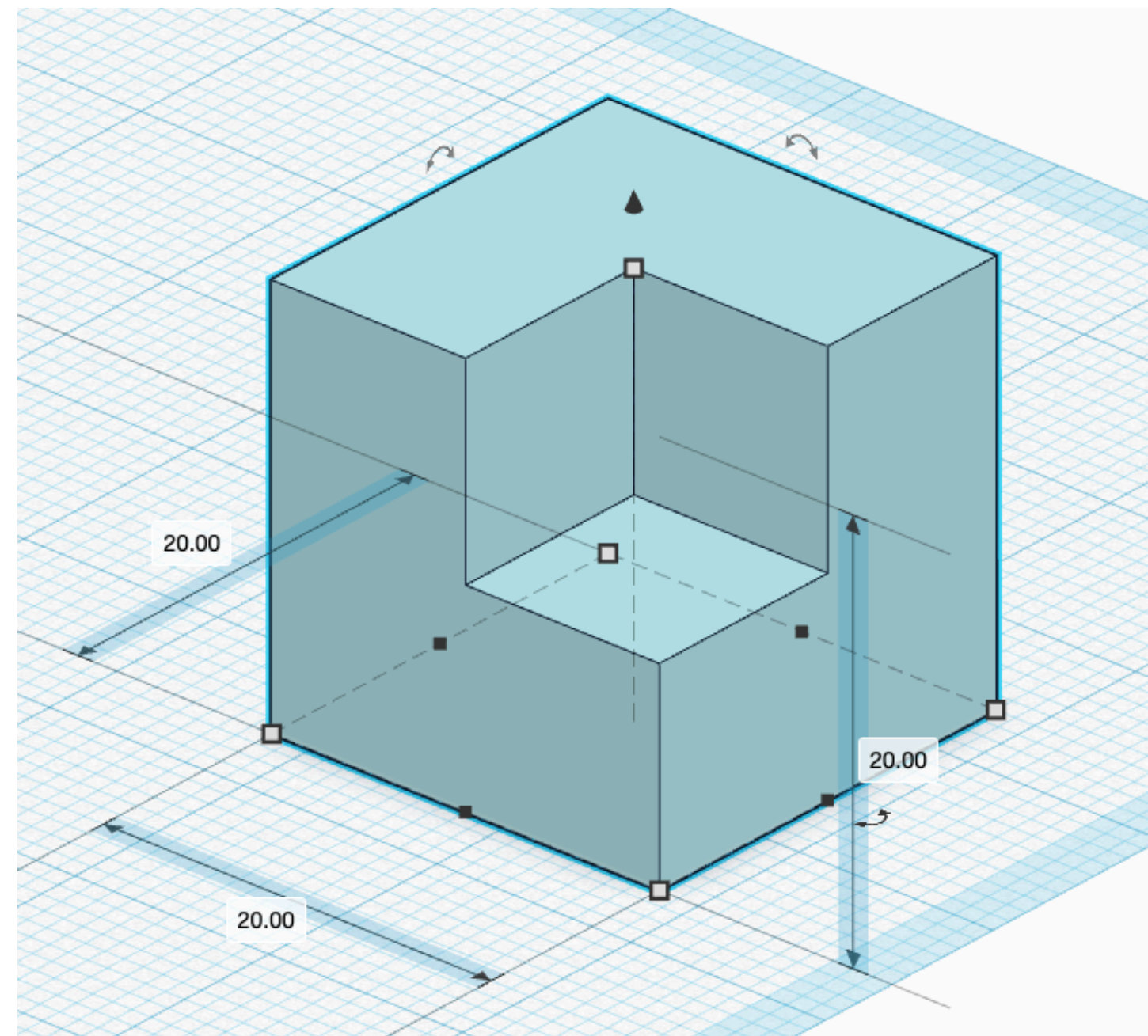
# 在二維平面呈現三維立體物件的 3 種方式



## 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

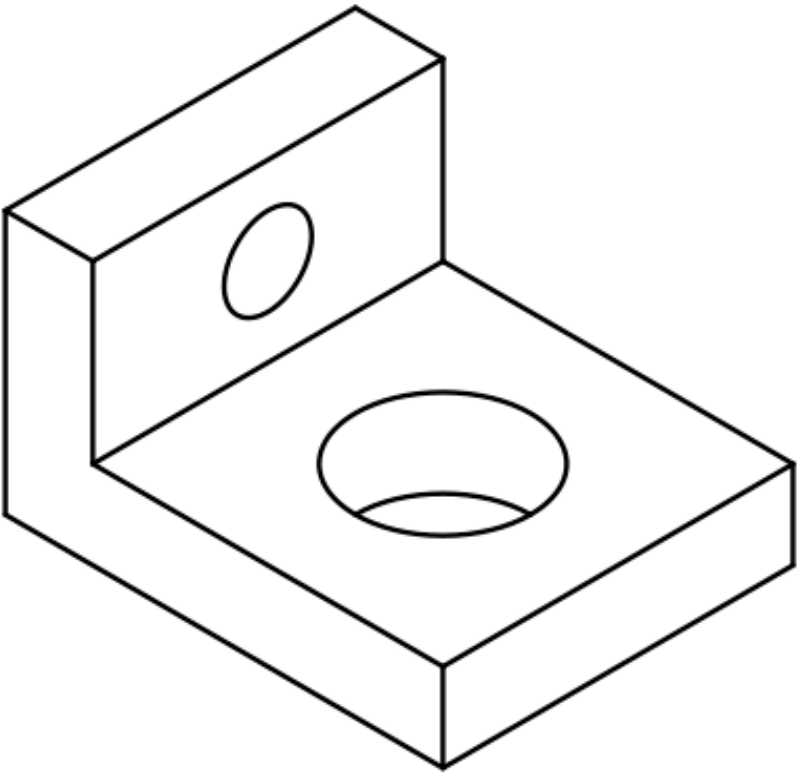


三個視角所看到的成像  
決定該物件確切的立體形狀  
(對立面才看得到的線畫成虛線)

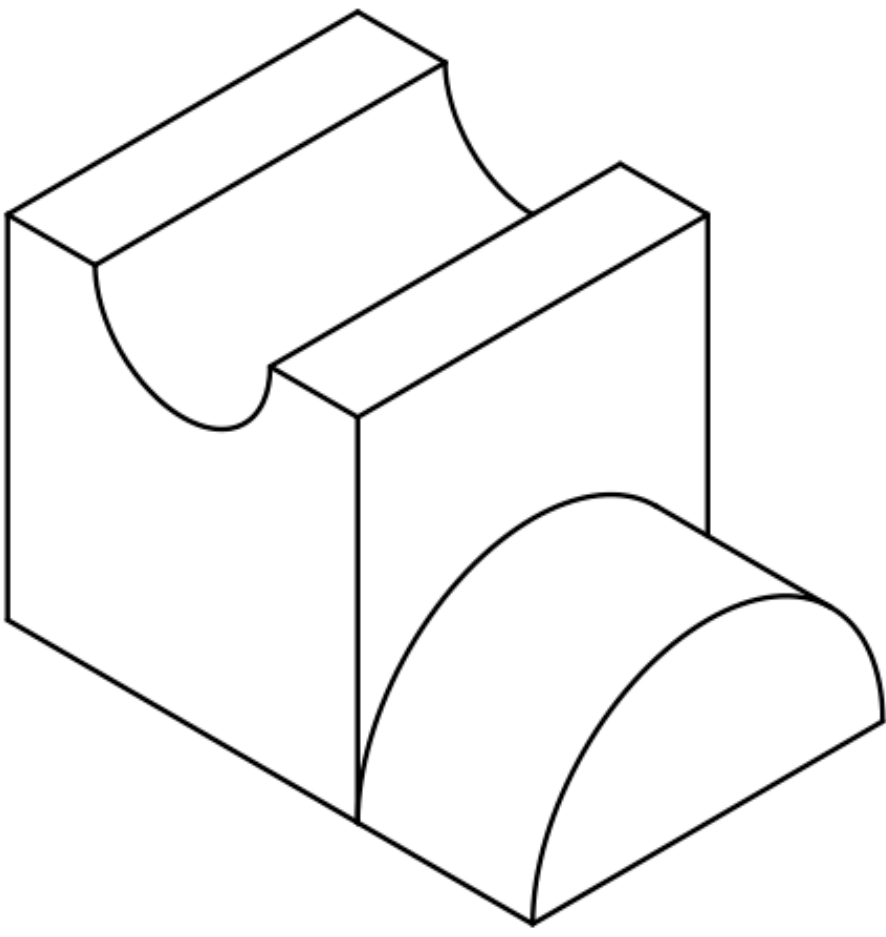

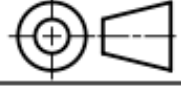
(同一個物件從前面看) (同一個物件從右面看)

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																																			
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A	1?	3?	A																																		
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
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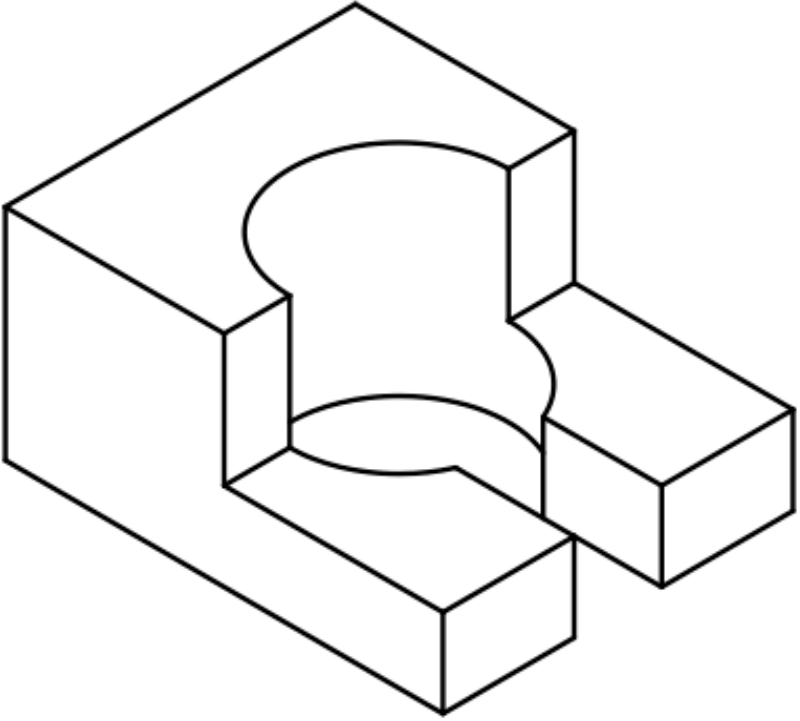
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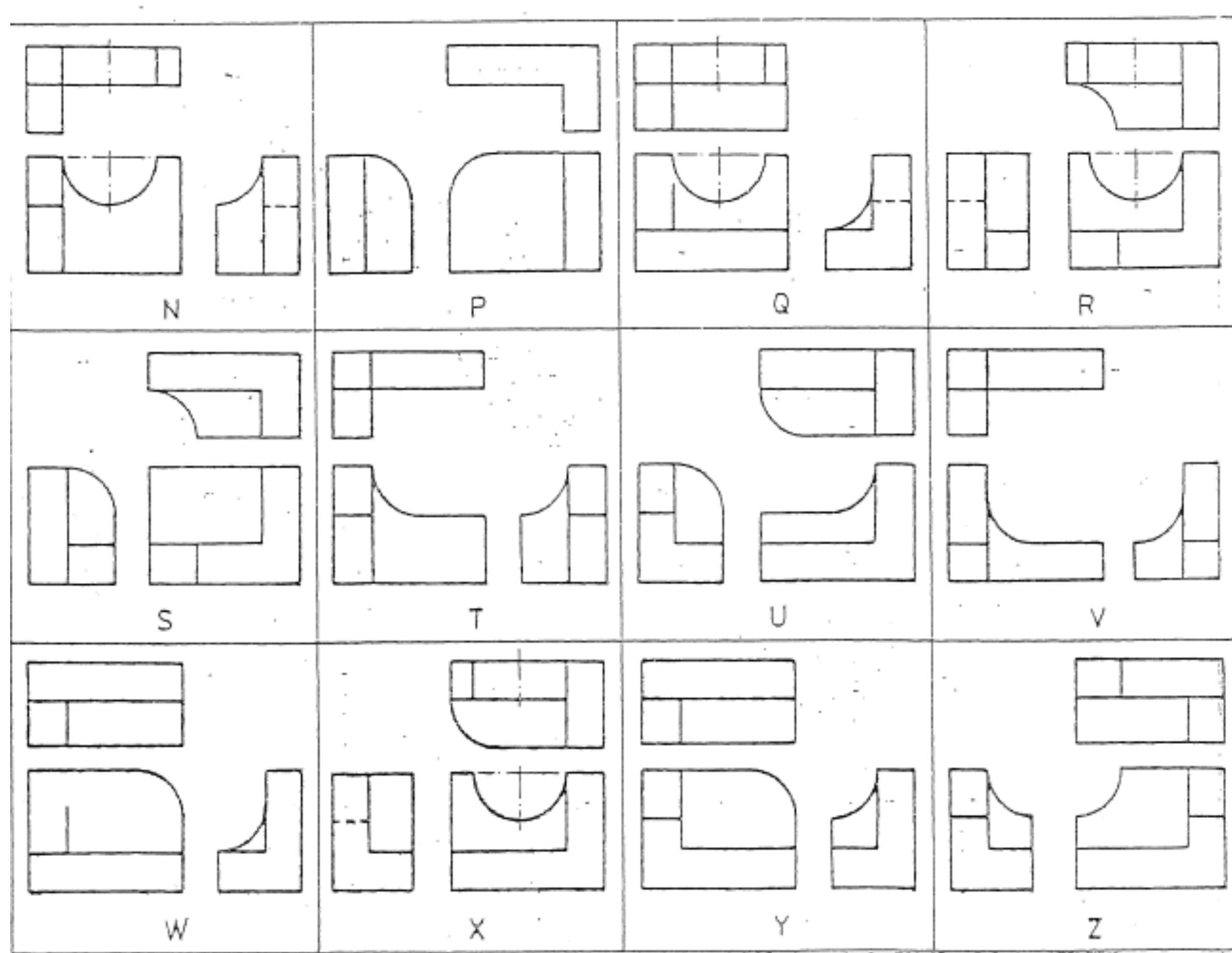
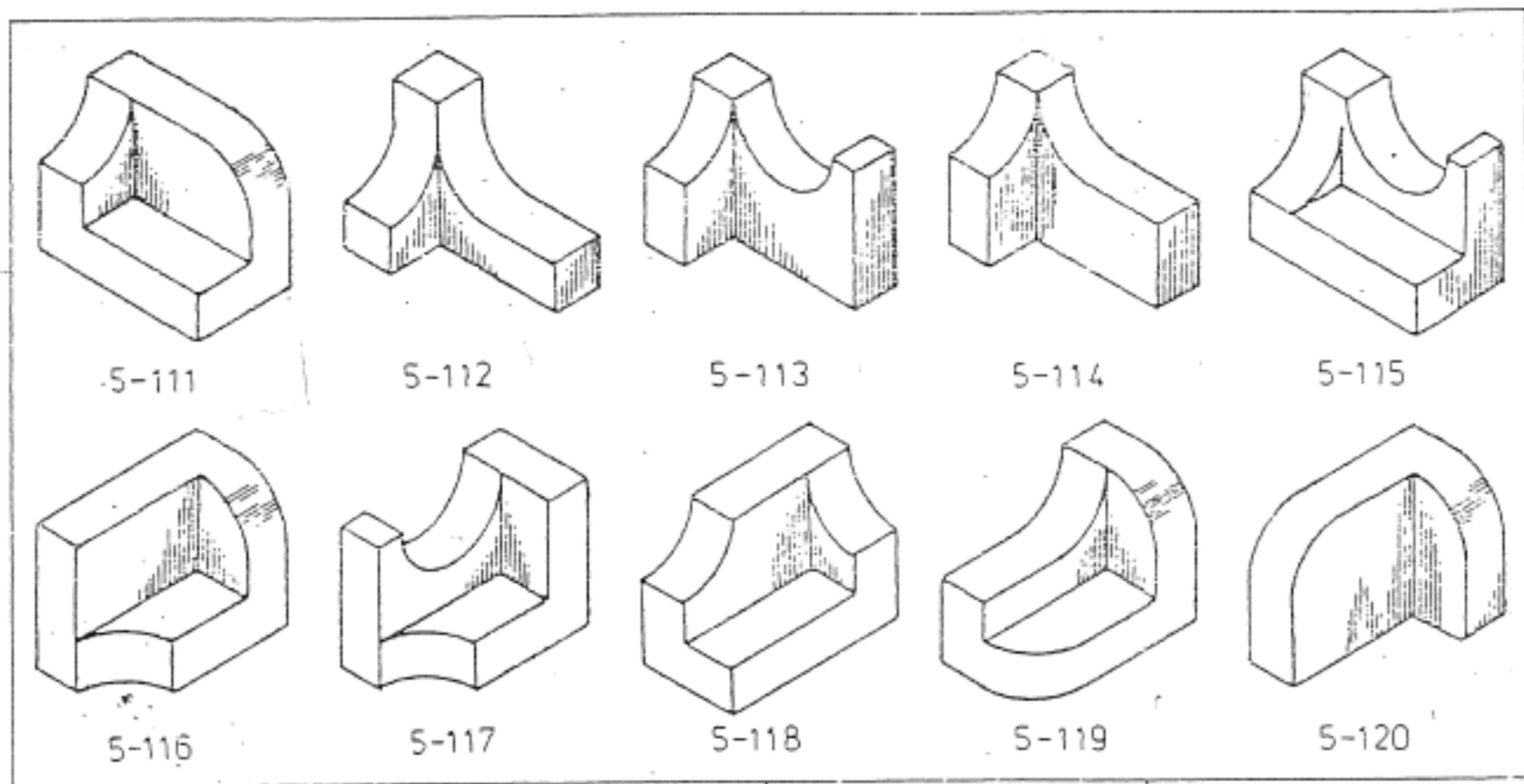
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Tinkercad

製圖入門

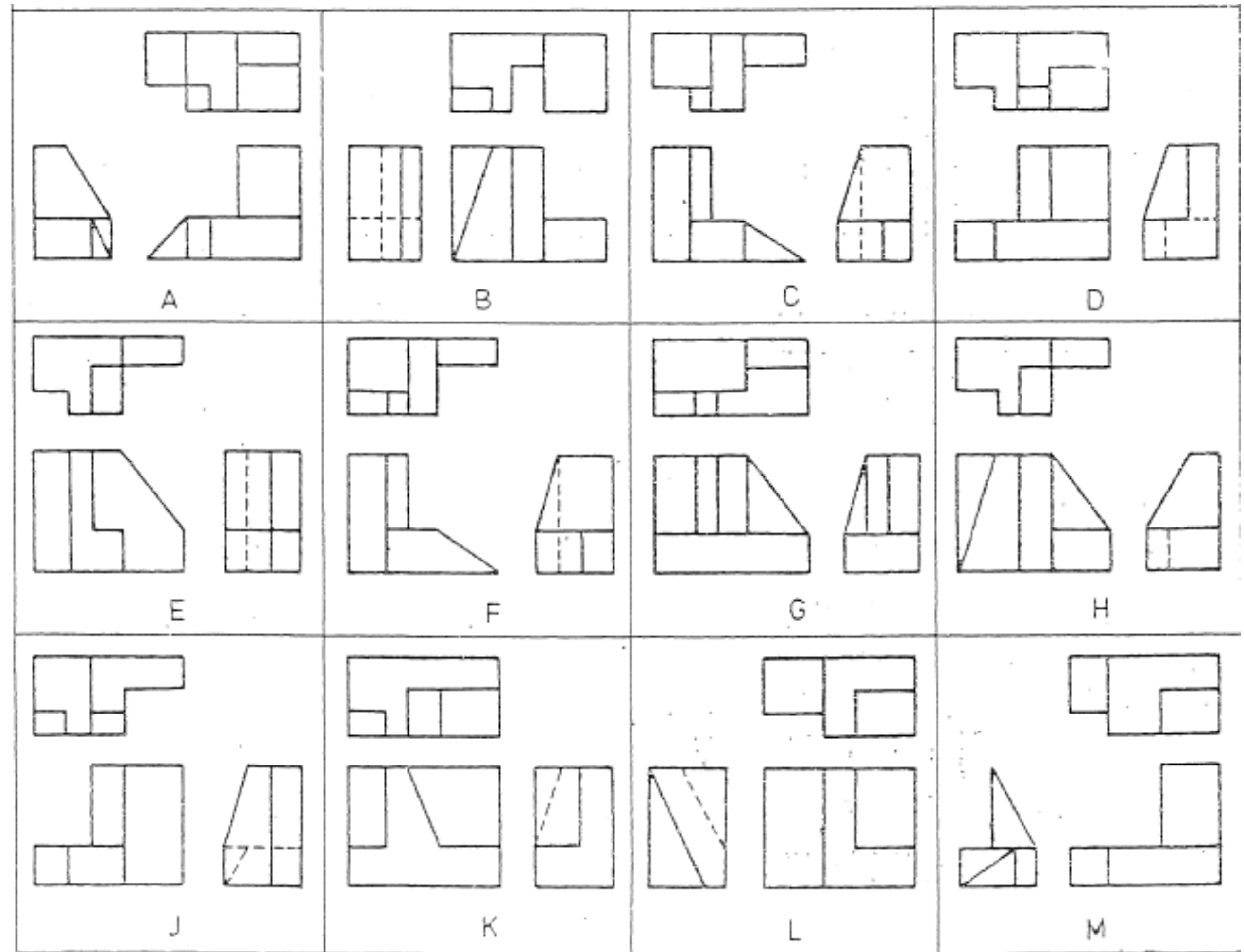
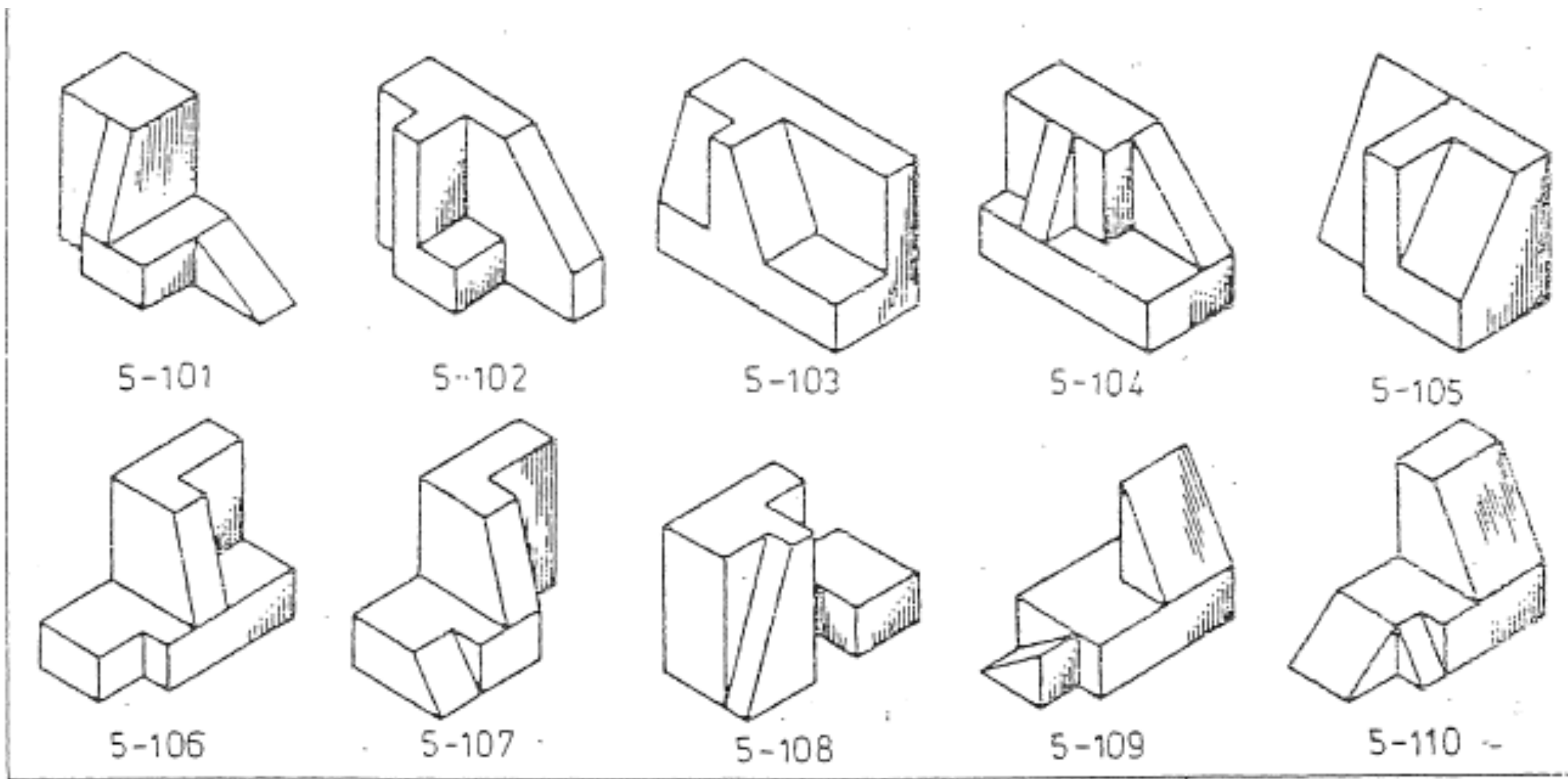
作業練習





# 練習1





# 練習 2

更多練習 ...

2

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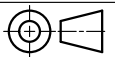
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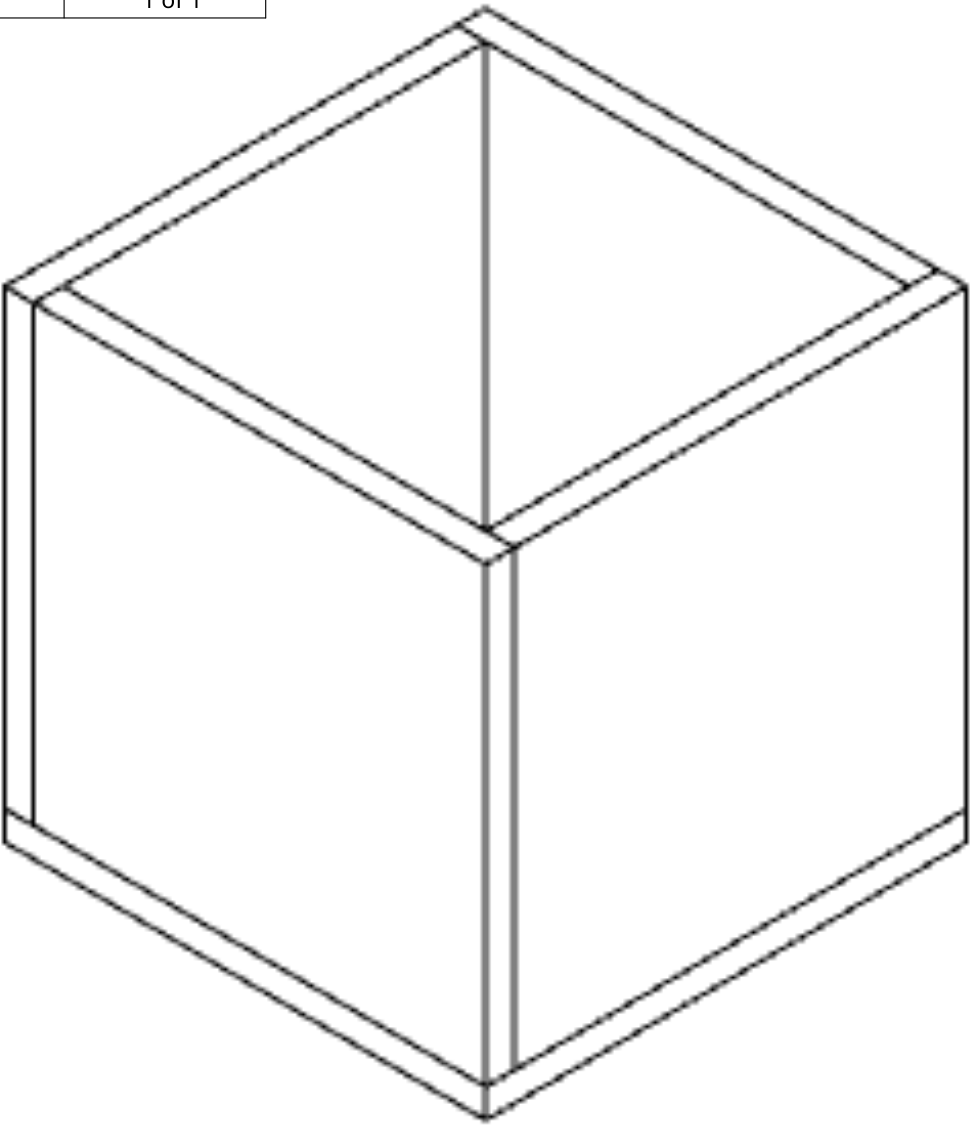
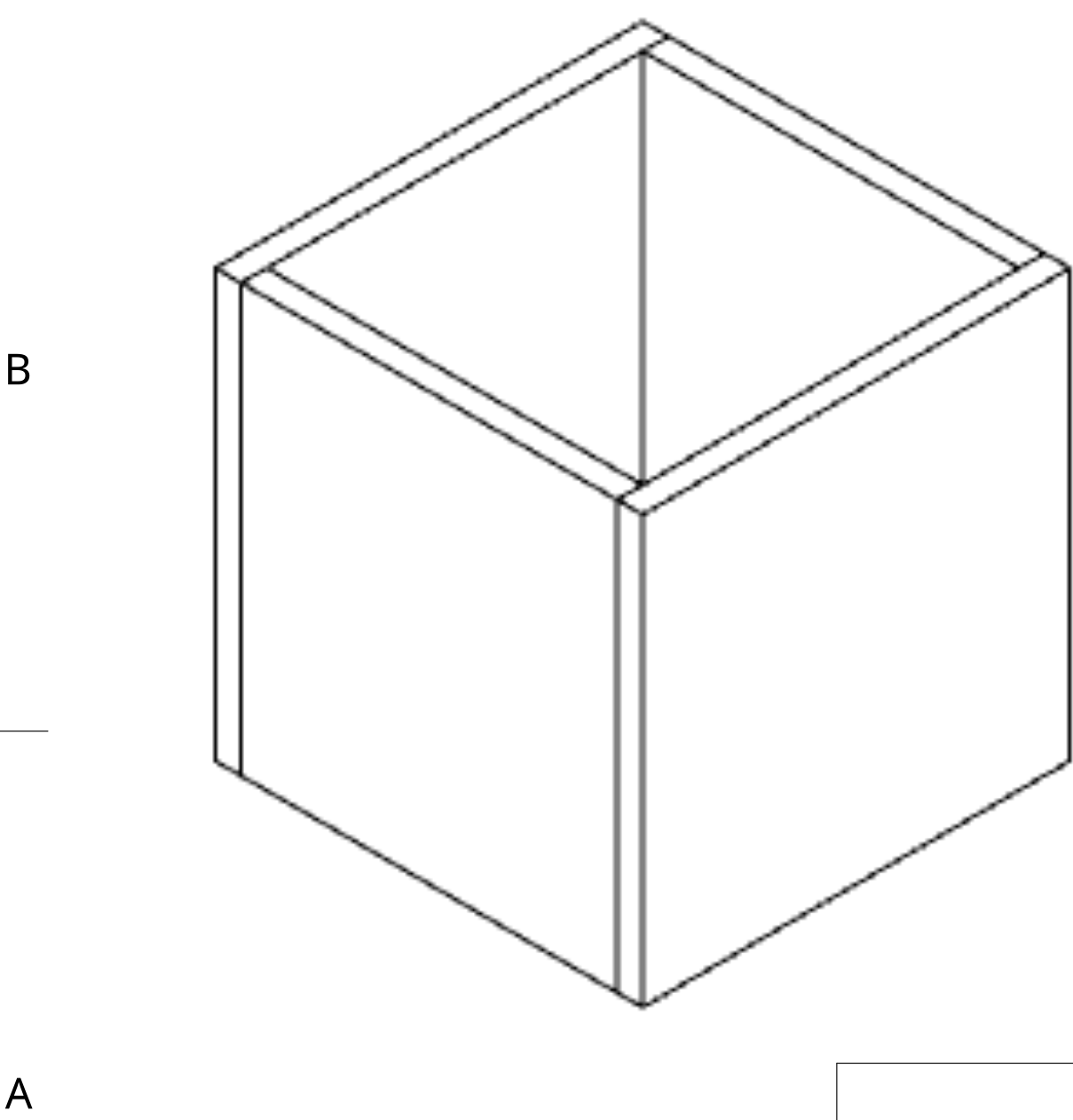
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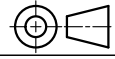
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練習：建模所需的版型

