

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

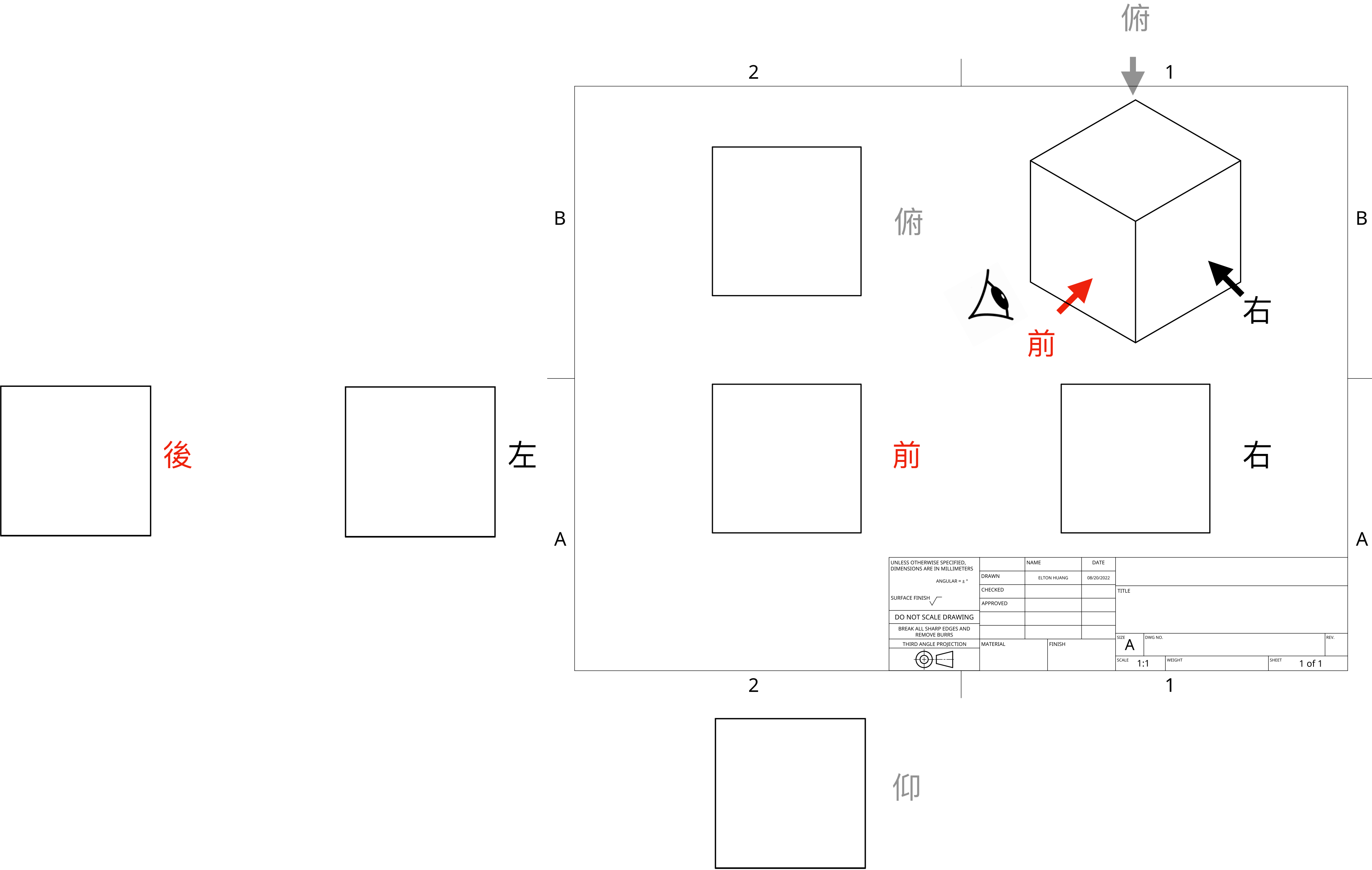
試錯的次數以及對手工技巧熟練的依賴


扶住比薩斜塔

Honda CR-V Commercial

Oscars Commercial: Illusion with Neil Patrick Harris

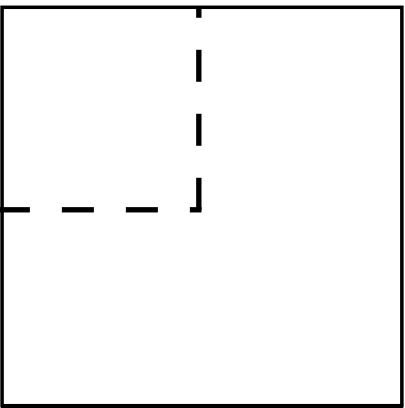
展開圖



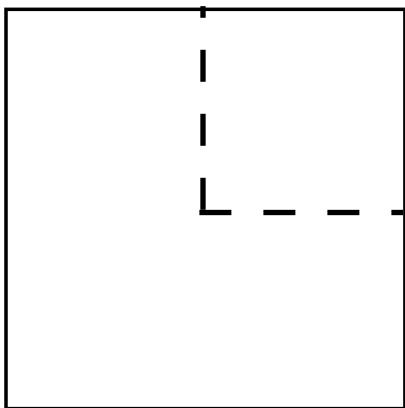
| | | | | | | |
|---|----------|-------------|------------|--------|--------|--|
| UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH ✓ DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION  | DRAWN | NAME | DATE | TITLE | | |
| | CHECKED | ELTON HUANG | 08/20/2022 | | | |
| | APPROVED | | | | | |
| | | | | | | |
| | | | | SIZE | A | |
| | | | | 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)

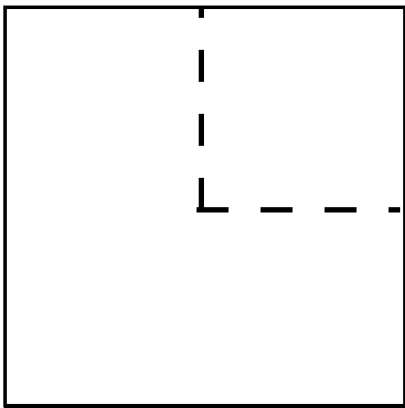


後

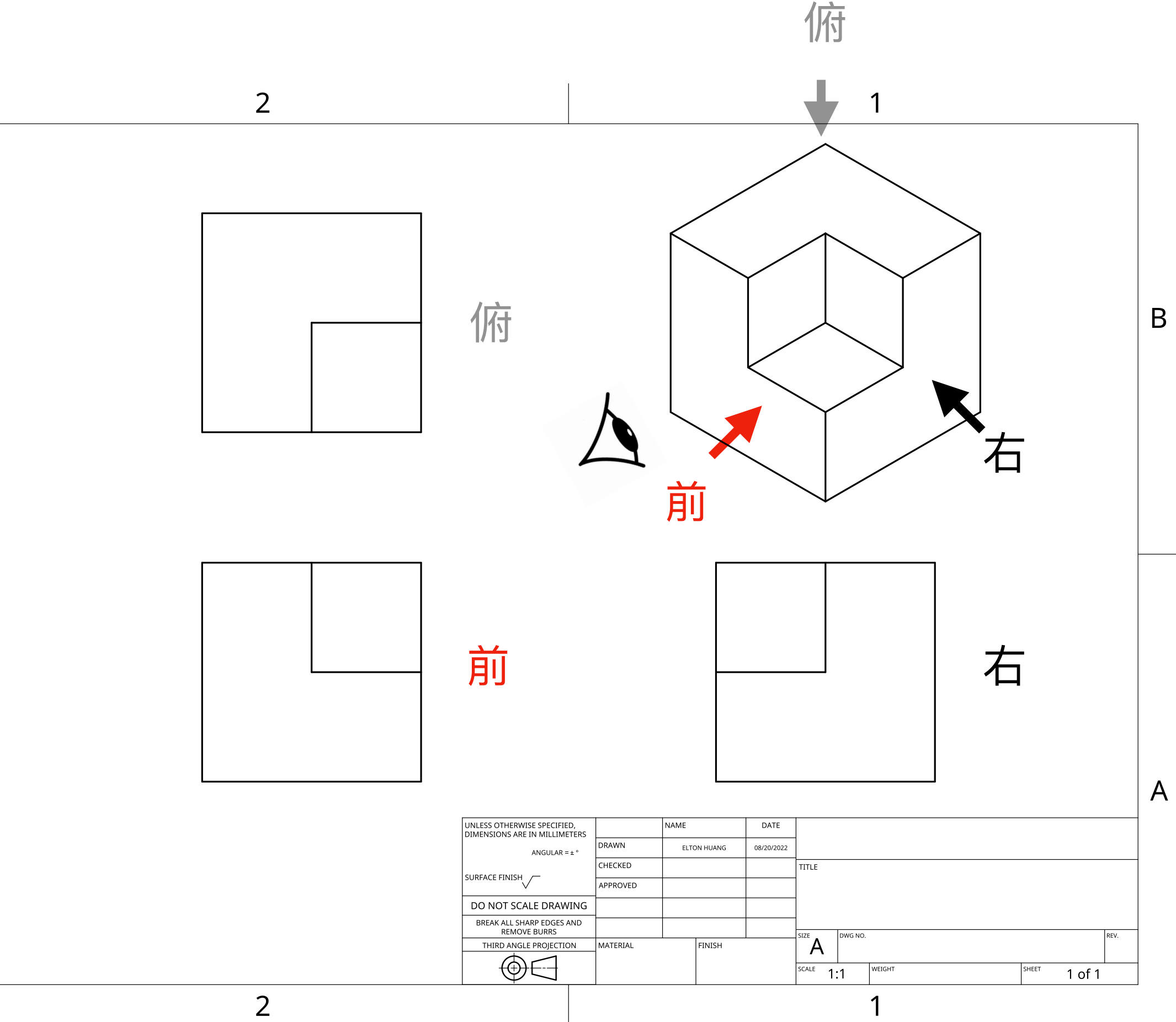


左

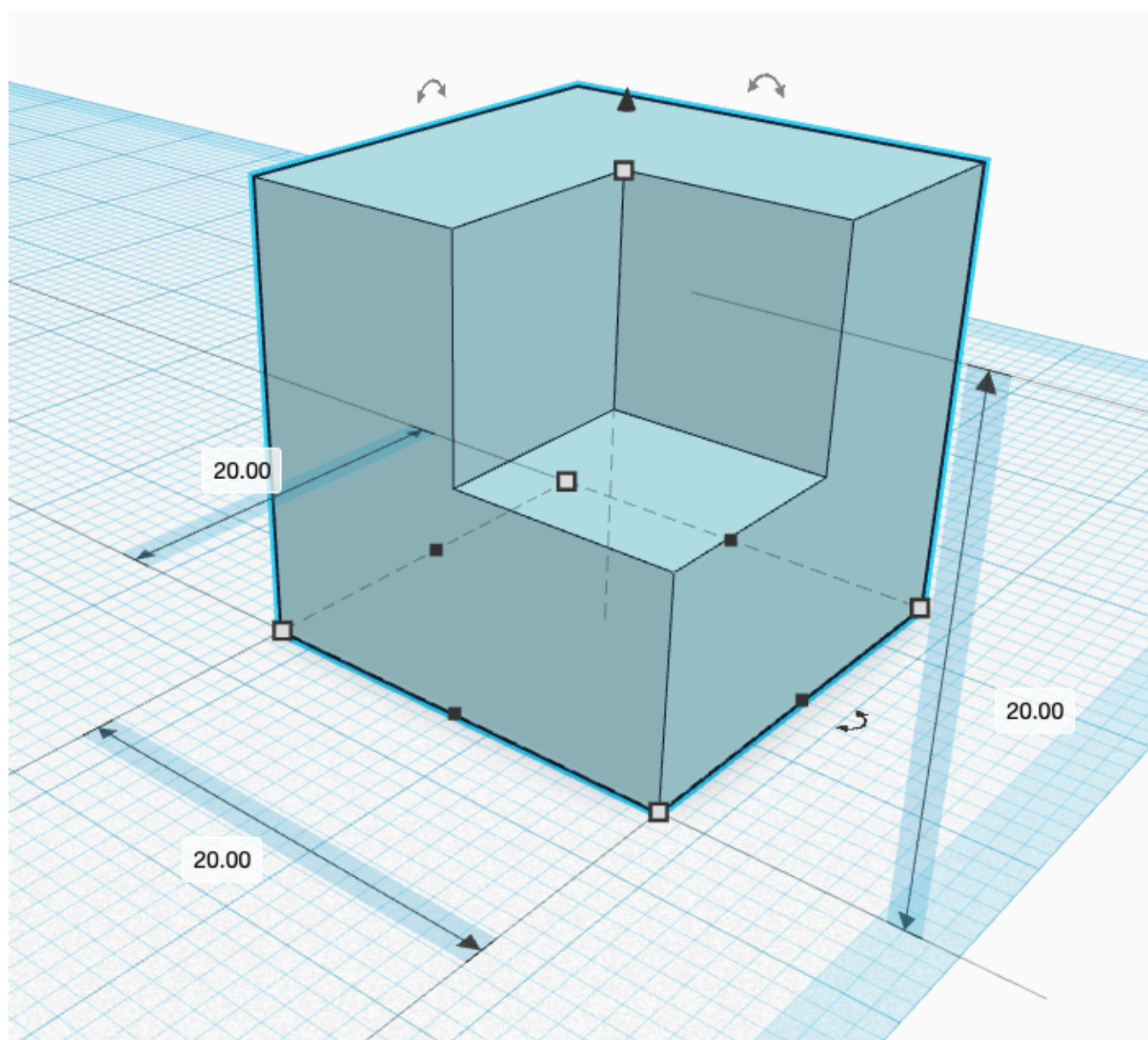
(與右視對稱貫穿過觀察者與物件平面)



仰 (與俯視對稱於水平面)



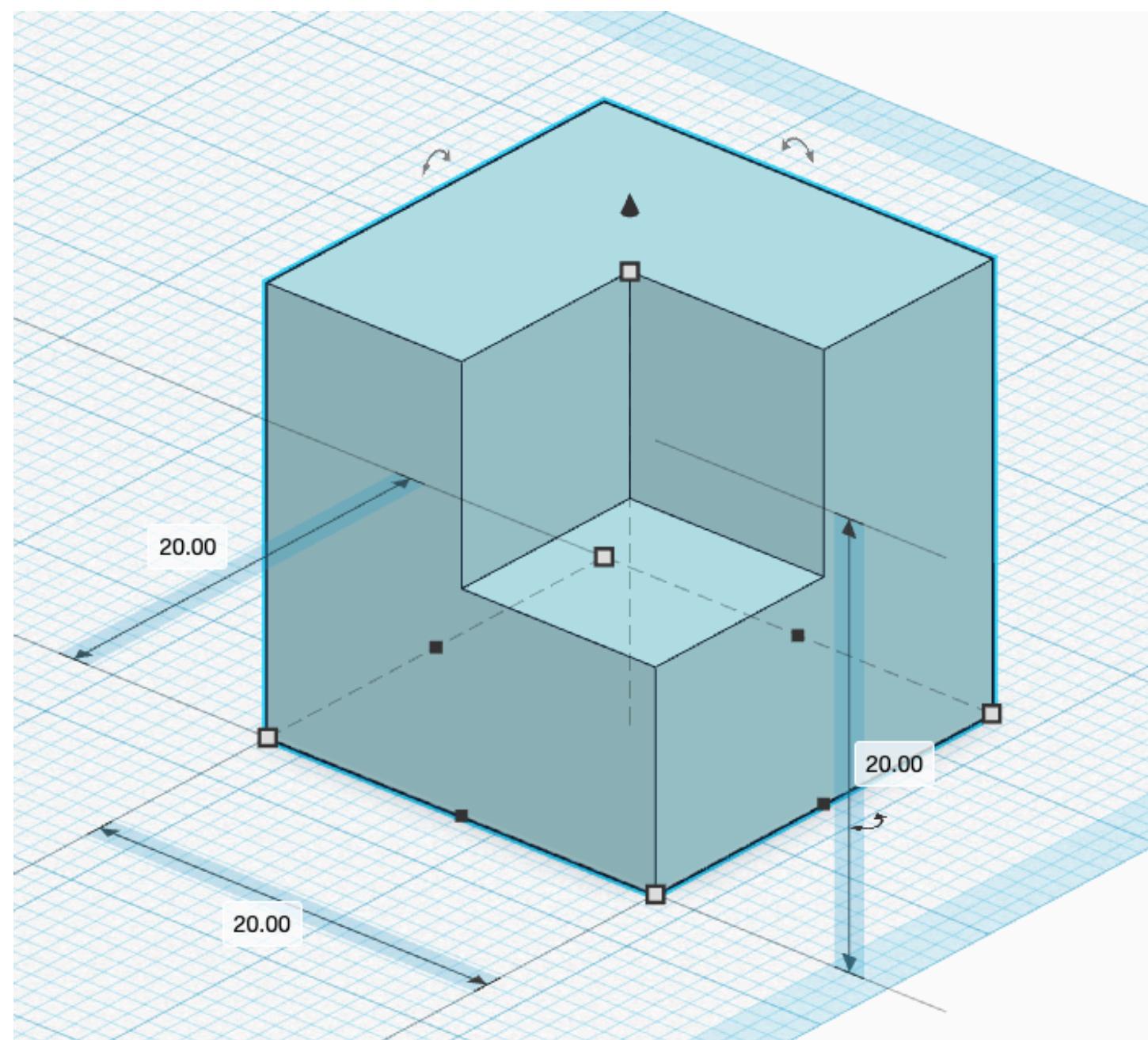
在二維平面呈現三維立體物件的 3 種方式



正視圖、立體圖

和數學立體空間幾何原則一致

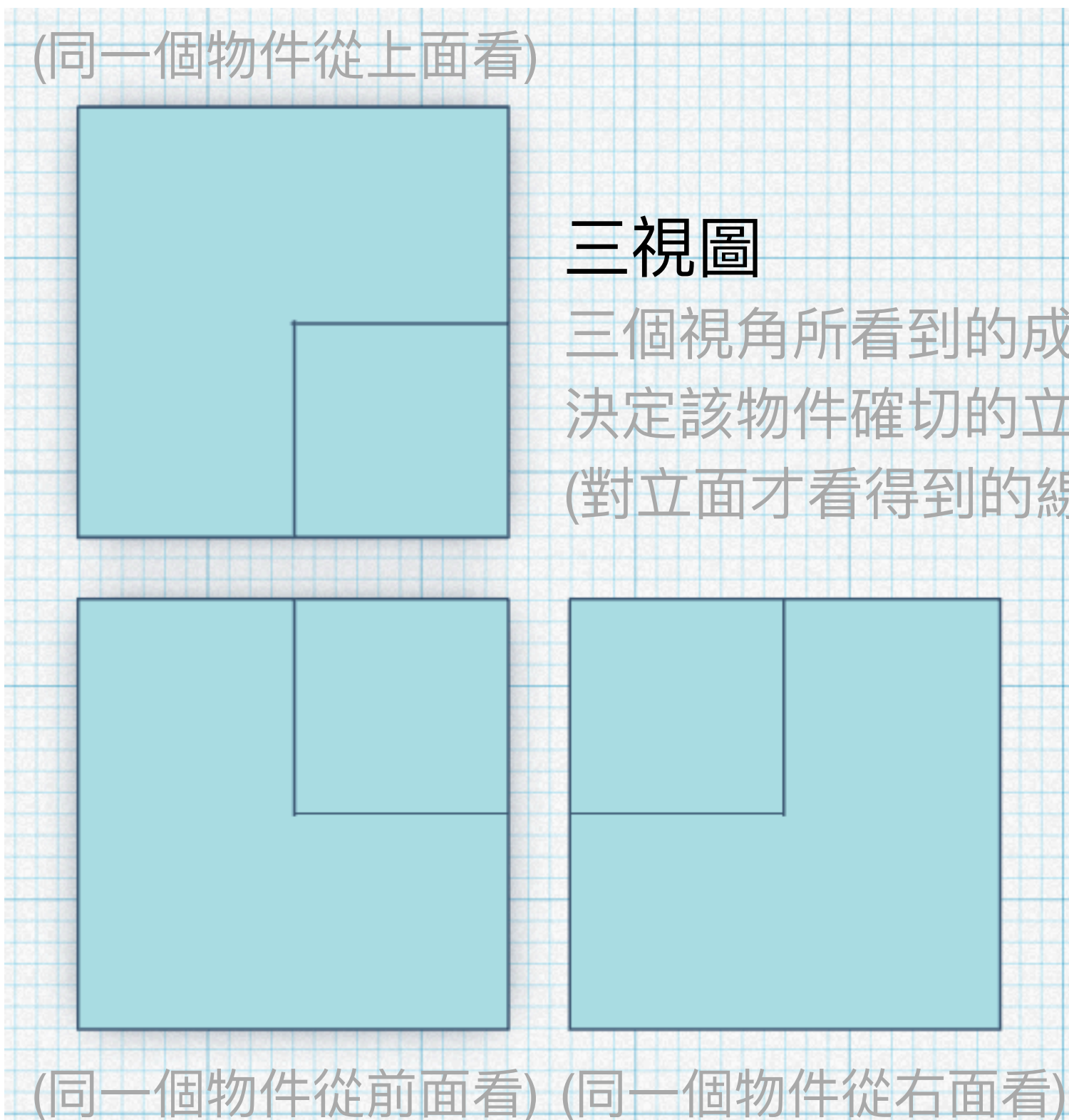
物體原來在 3D 空間平行的線
在 2D 圖面上仍然平行



(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



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

A

?

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

CHECKED

APPROVED

NAME

ELTON HUANG

DATE

08/20/2022

TITLE

SIZE

A

DWG NO.

REV.

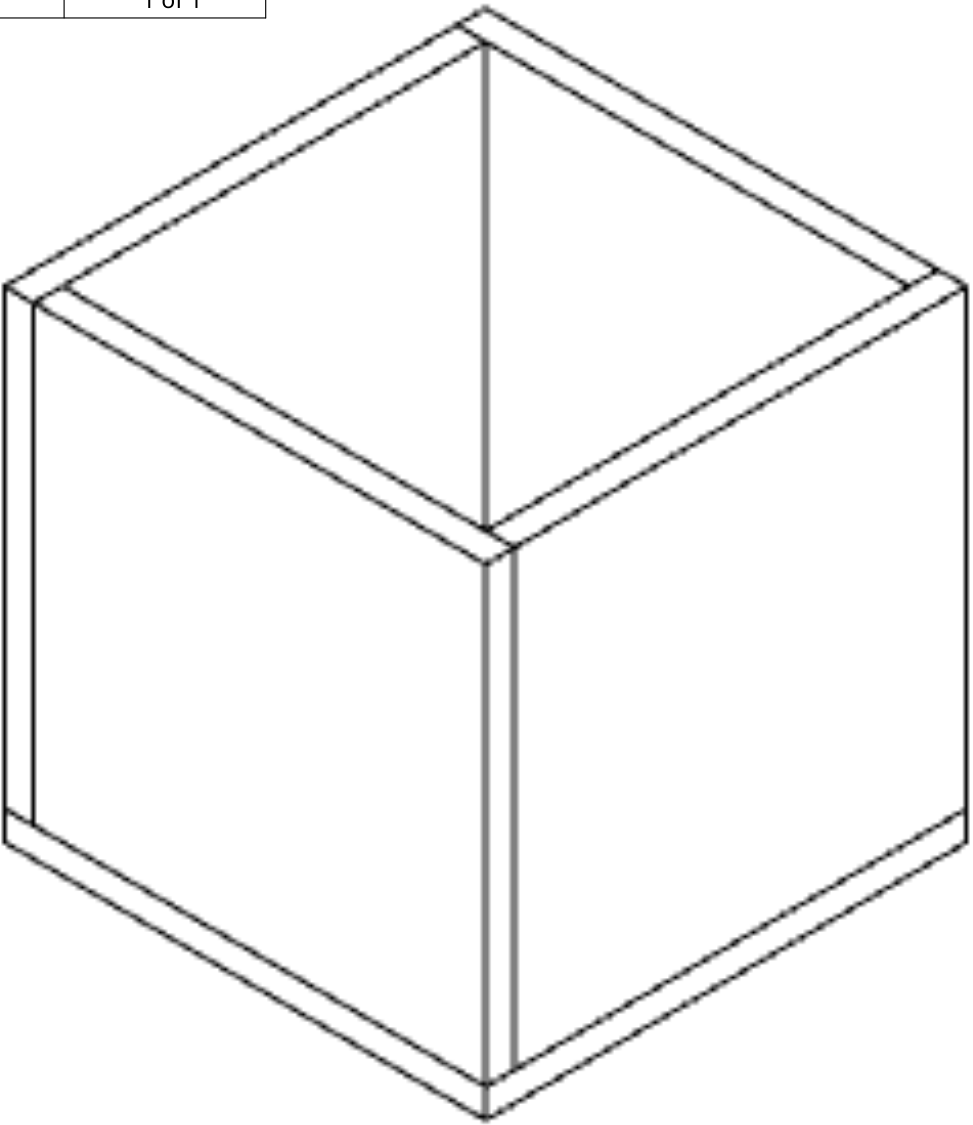
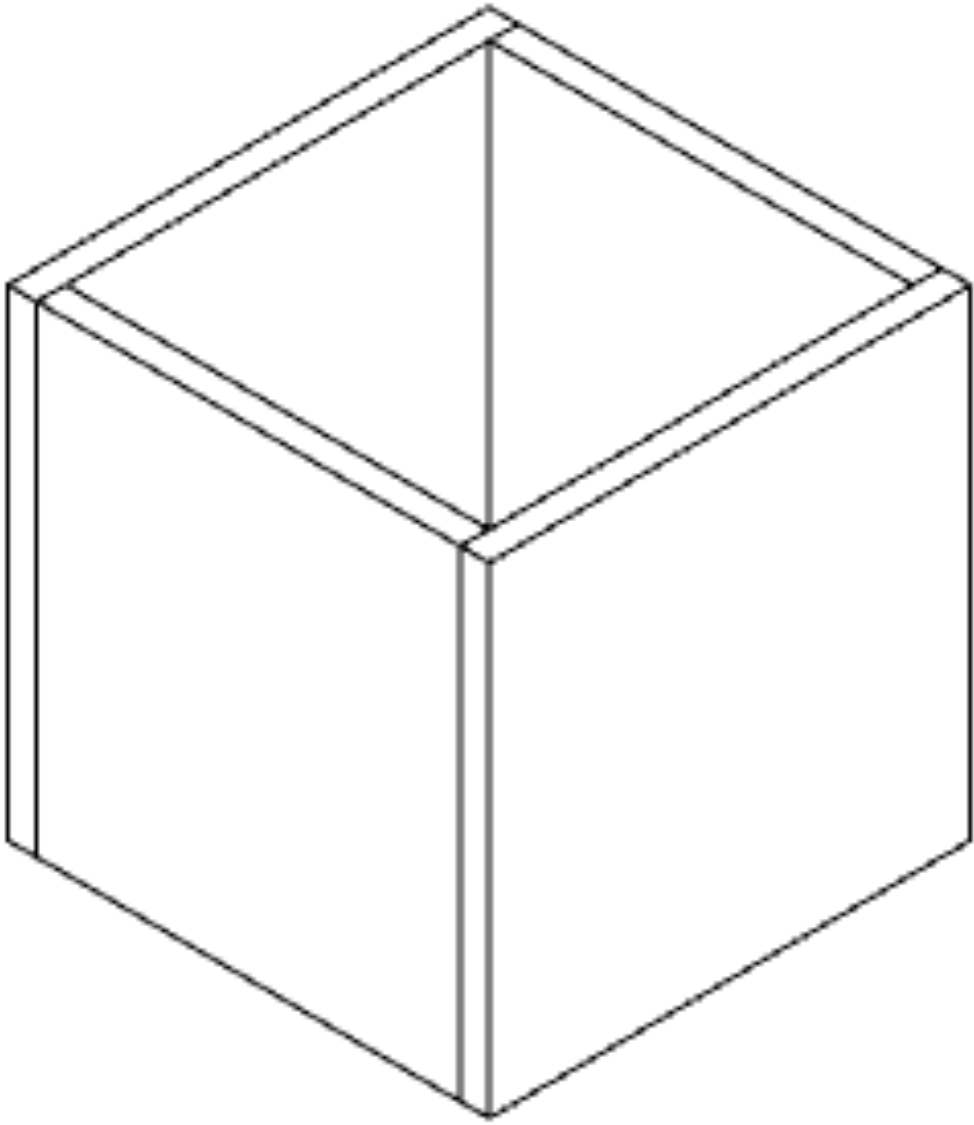
SCALE

1:1

WEIGHT

SHEET

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2

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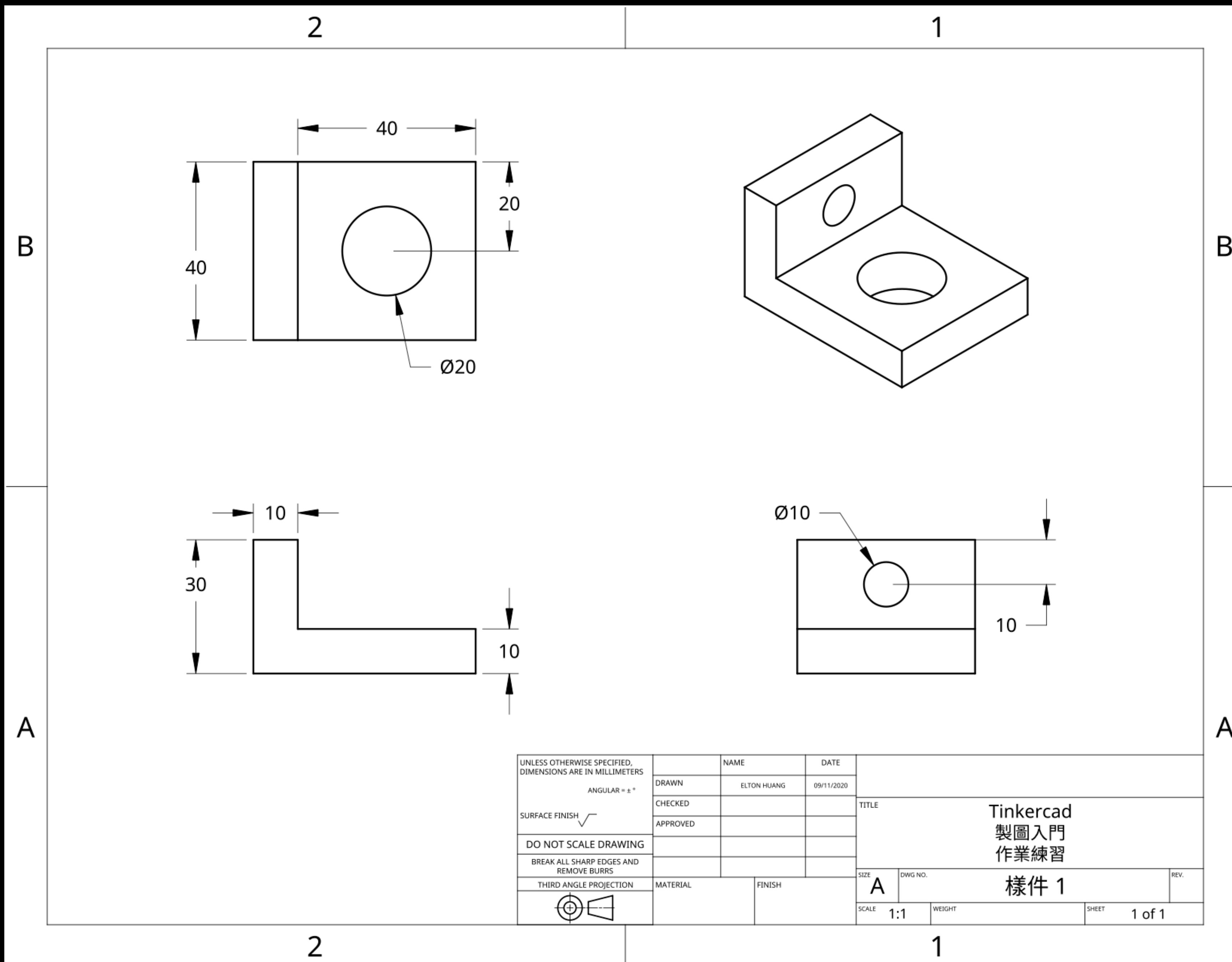
SCALE


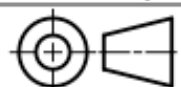
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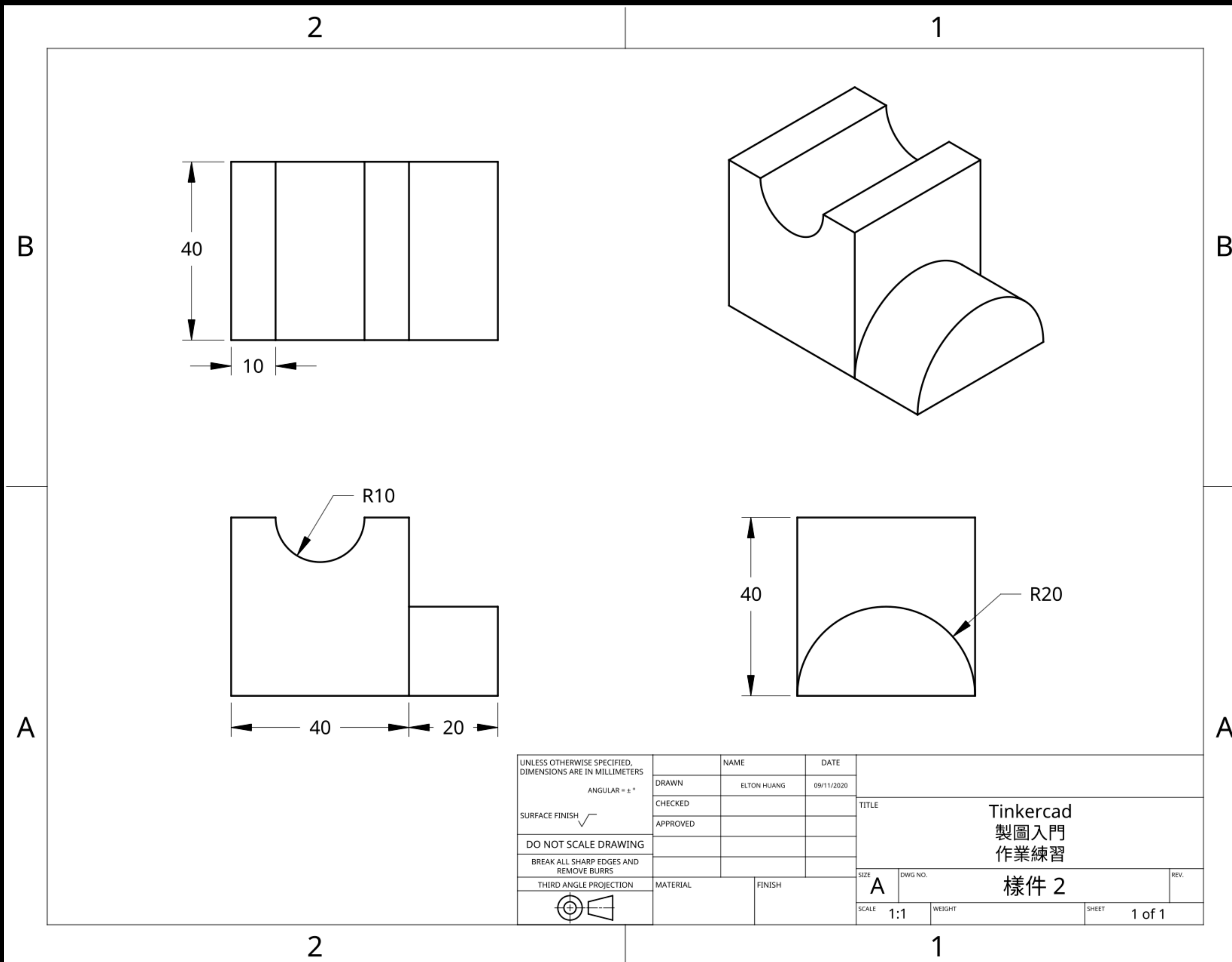
WEIGHT


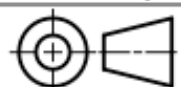
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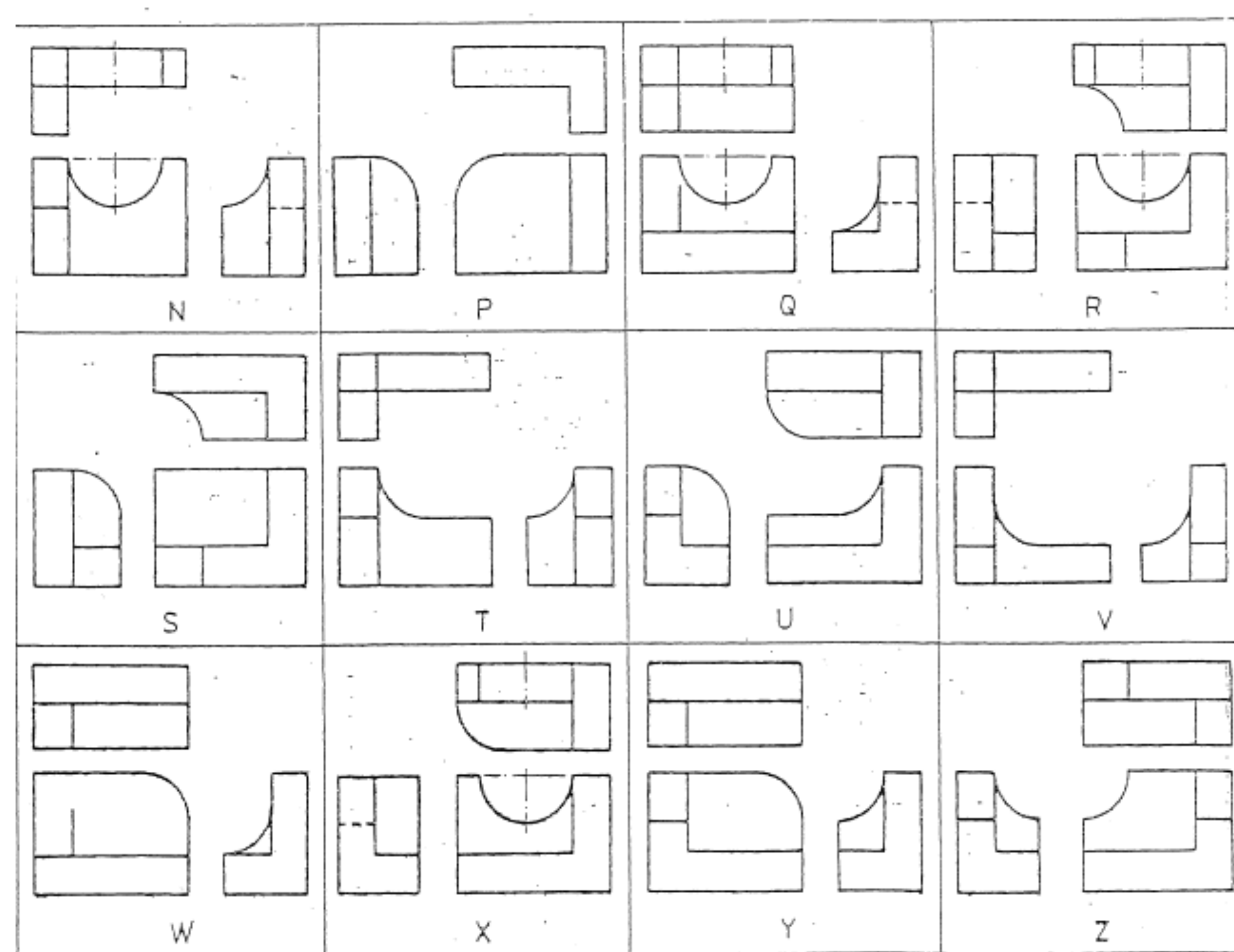
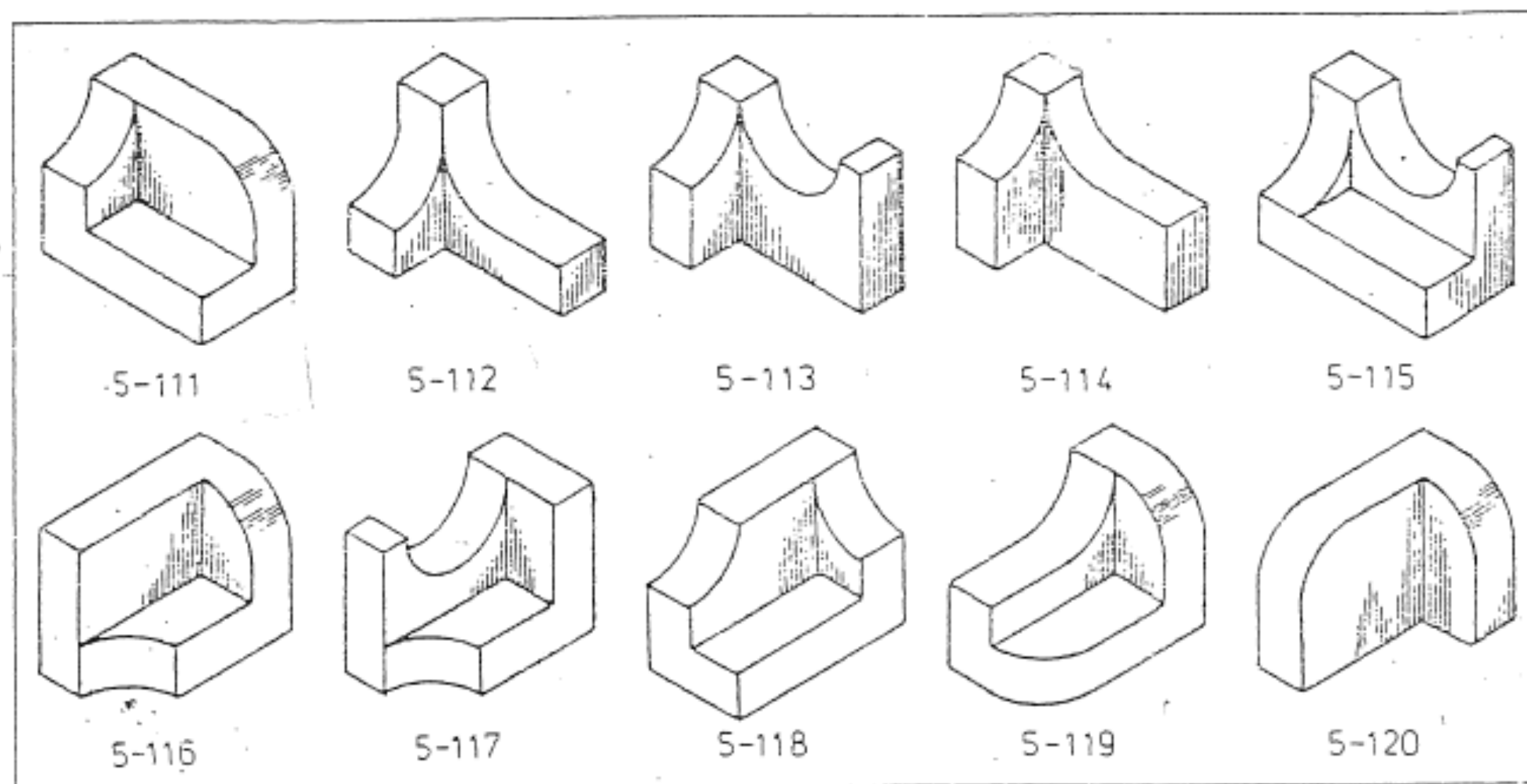
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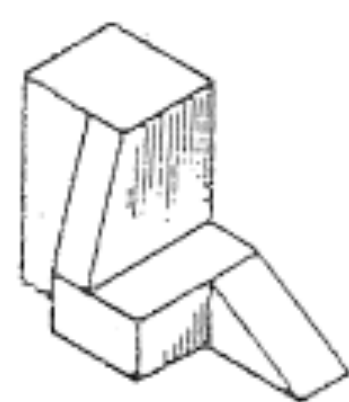


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|--|----------|-------------|------------|------------------------------------|--------------|---------------------------|
| UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± ° SURFACE FINISH  DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION  | | NAME | DATE | TITLE Tinkercad 製圖入門 作業練習 | | |
| | DRAWN | ELTON HUANG | 09/11/2020 | | | |
| | CHECKED | | | | | |
| | APPROVED | | | | | |
| | | | | | | |
| | MATERIAL | | FINISH | | SIZE A | DWG NO. 樣件 1 |
| | | | | | SCALE 1:1 | WEIGHT SHEET 1 of 1 |

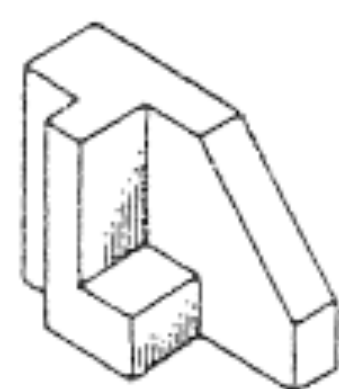


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| | DRAWN | ELTON HUANG | 09/11/2020 | | | |
| | CHECKED | | | TITLE | | |
| | APPROVED | | | | | |
| | | | | | | |
| | MATERIAL | FINISH | | SIZE | DWG NO. | REV. |
| | | | | A | 樣件 2 | |
| | SCALE | 1:1 | WEIGHT | SHEET | 1 of 1 | |

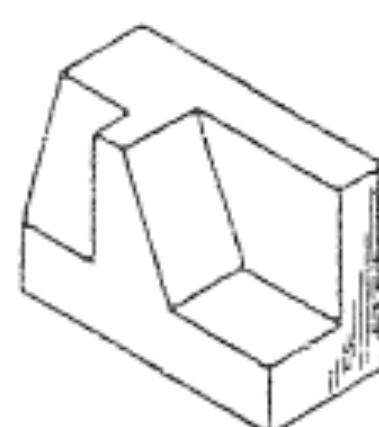




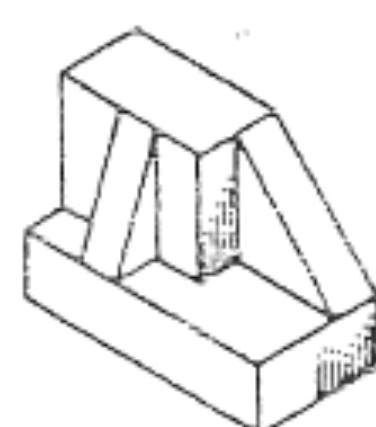
5-101



5-102



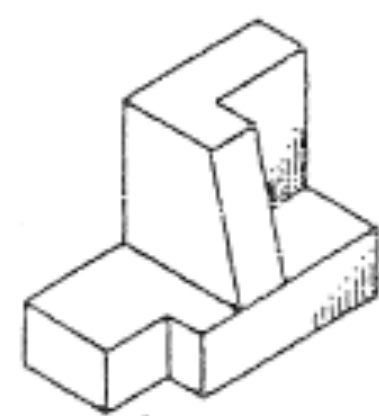
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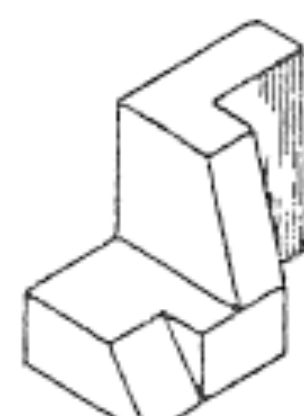
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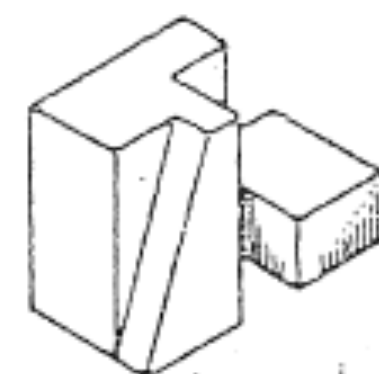
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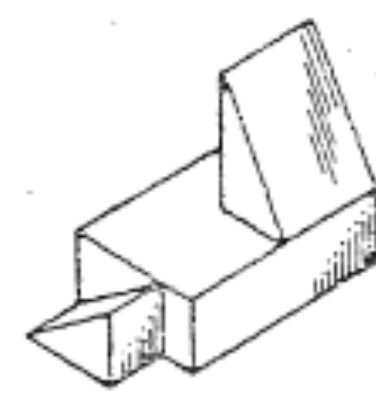
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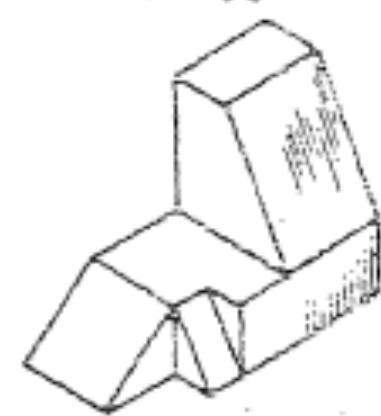
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5-108



5-109



5-110

