

名式 4 線對稱圖形的判斷

主圖形中只要能找到一條以上的對稱軸，則該圖形即為線對稱圖形。

難度：★★★★★
易度：★
考度：★★★★



一條對稱軸都找不到的圖形，就不是線對稱圖形，但在下結論前宜停看聽，再三確認，各個方向都要進行觀察。

1. (1) 下列國字為線對稱圖形的打「○」，不是的打「×」。

① 平 ② 區 ③ 臣 ④ 來
() () () ()

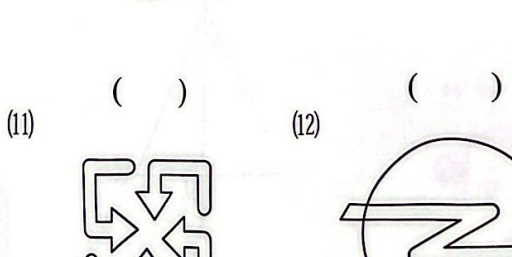
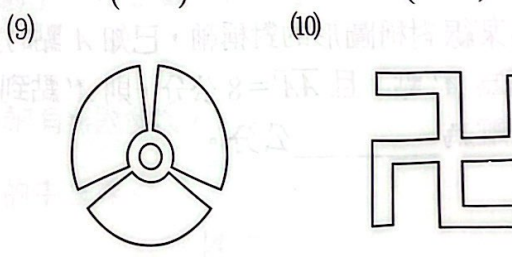
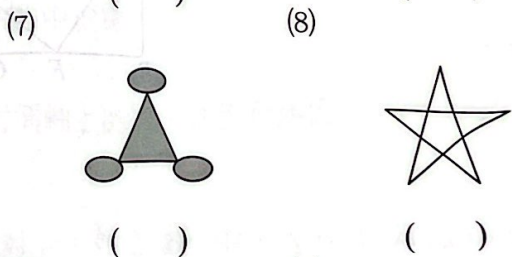
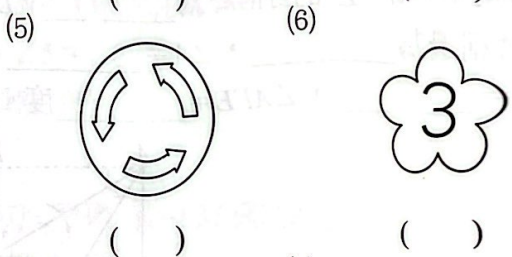
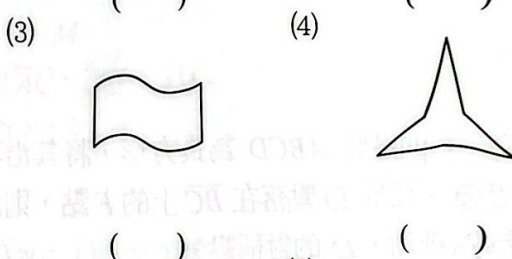
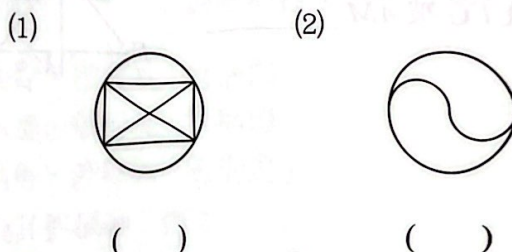
(2) 下列英文字母為線對稱圖形的打「○」，不是的打「×」。

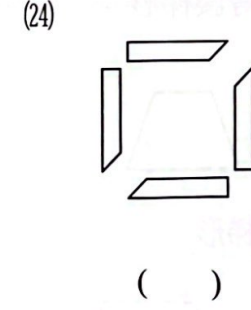
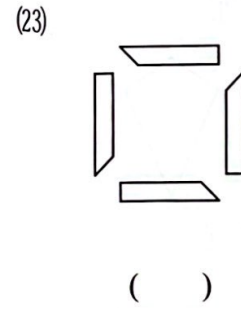
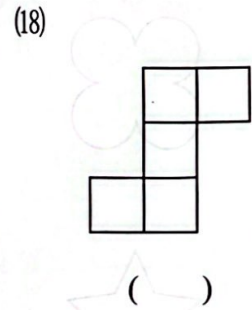
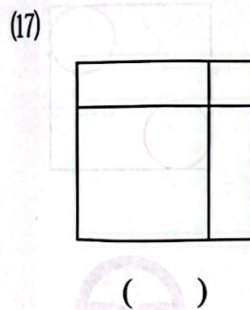
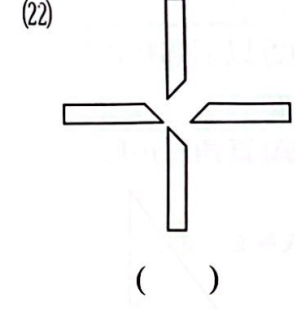
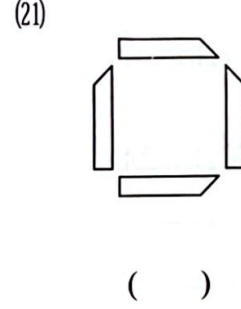
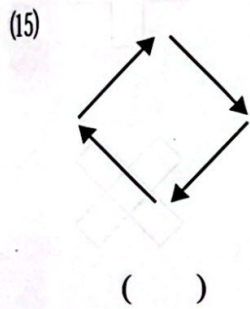
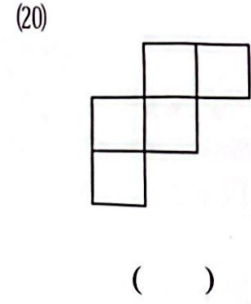
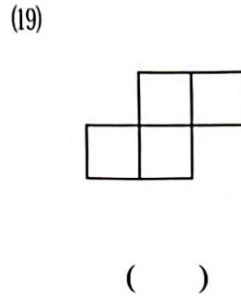
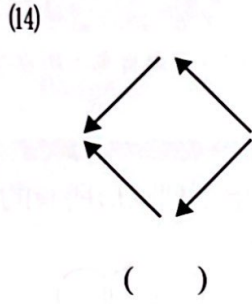
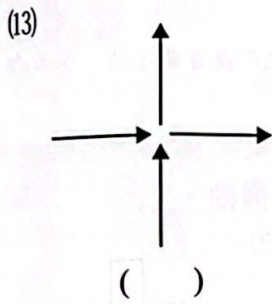
① C ② D ③ S ④ Z
() () () ()

(3) 下列阿拉伯數字為線對稱圖形的打「○」，不是的打「×」。

① 3 ② 6 ③ 4 ④ 5
() () () ()

2. 下列各圖為線對稱圖形的打「○」，不是的打「×」。





招式 5 畫出常見幾何圖形的對稱軸

圖形名稱	圓形	等腰三角形	正方形	長方形	平行四邊形	菱形	箏形	等腰梯形
圖形								
對稱軸個數	無限多	1	4	2	0	2	1	1

💡 請特別注意：長方形的兩條對角線並非其對稱軸。另外，平行四邊形並非線對稱圖形喔

2. 正 n 邊形必為線對稱圖形，且必有 n 條對稱軸。

圖形名稱	正三角形	正方形	正五邊形	正六邊形
圖形				
對稱軸個數	3	4	5	6

💡 正 n 邊形中，若 n 為奇數，則對稱軸必為頂點與對邊中點相連的直線；



圖形：★★★
圖形：★
必考題：★★★★



這些常見圖形的對稱軸幾乎一眼即可判斷出來，所以可說是沒有難度的，簡直都是送分題呀！

1. (1) 以下哪些圖形必為線對稱圖形？

(2) 以下哪些圖形只有一條對稱軸？

(3) 以下哪些圖形恰有兩條對稱軸？

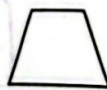
(A) 直角三角形

(B) 平行四邊形



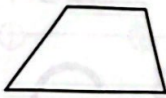
(C) 等腰梯形

(D) 箏形



(E) 梯形

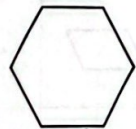
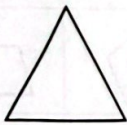
(F) 橢圓



2. 畫出下列圖形所有的對稱軸。

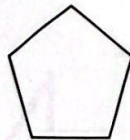
(1) 正三角形

(2) 正六邊形



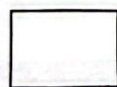
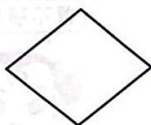
(3) 正方形

(4) 正五邊形



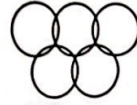
(5) 菱形

(6) 長方形



3. 畫出下列圖形所有的對稱軸。

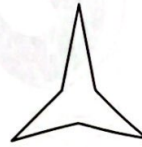
(1)



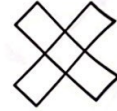
(2)



(3)



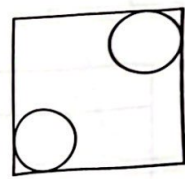
(4)



(5)



(6)



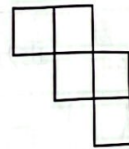
(7)



(8)



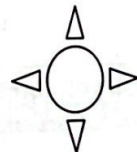
(9)



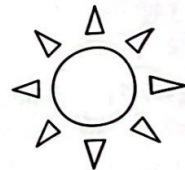
(10)



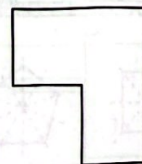
(11)



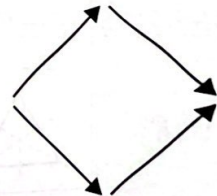
(12)



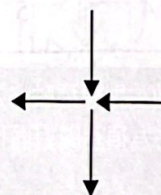
(13)



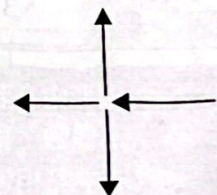
(14)



(15)



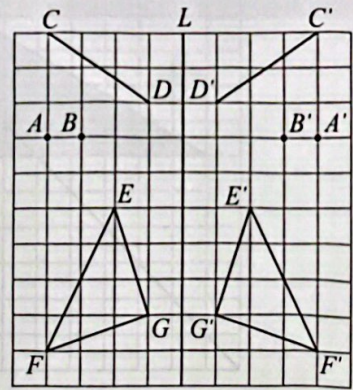
(16)



招式 6 畫出已知圖形的線對稱圖形

1. 線對稱時，任意兩對稱點的連線必與對稱軸垂直，且被對稱軸所平分。

例 如右圖，若 L 為對稱軸，則 A 、 B 的對稱點分別為 A' 、 B' ； $\overline{CD}$ 的對稱線段為 $\overline{C'D'}$ ； $\triangle EFG$ 的對稱圖形為 $\triangle E'F'G'$ 。



2. 從鏡子中看到的圖形即為原圖的鏡射圖形，其左右是相反的。

例 若電子鐘顯示的時間為 **02:31**，則在鏡子中看到的應為 **1E:50**，建議同學翻到本頁背面透光觀察，即可輕易了解。

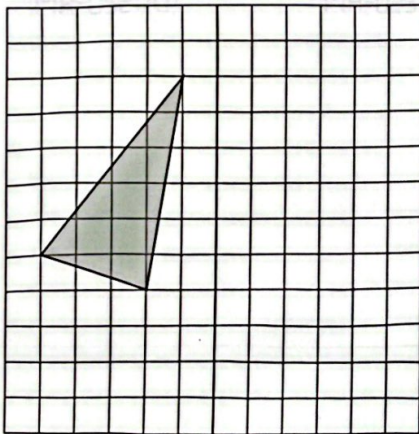
靈巧度：★★★
難易度：★★
必考度：★★★



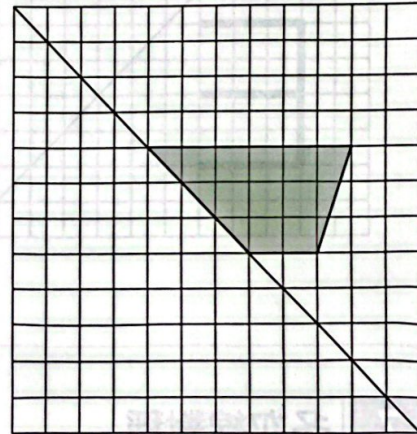
只要掌握一個簡單的原則即可：任意兩對稱點的連線，必與對稱軸垂直，且被對稱軸所平分。

1. 畫出下列各已知圖形與已知對稱軸的線對稱圖形。

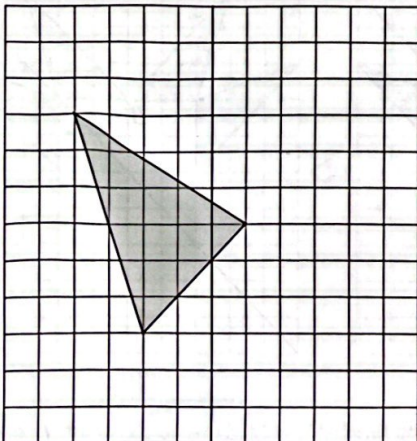
(1)



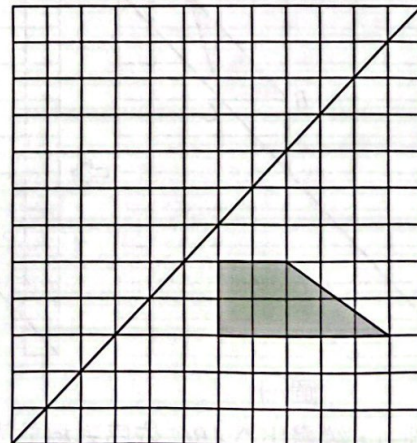
(3)



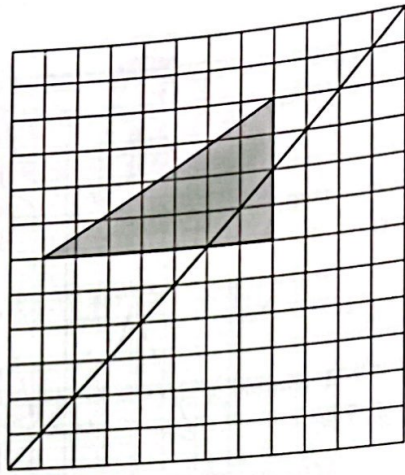
(2)



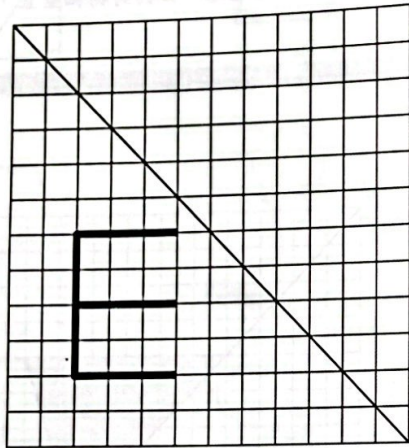
(4)



(5)



(6)



2. 欣龍從鏡子中看到電子時鐘顯示的時間為 **重要** E2:51, 則此時應為 _____ 時 _____ 分。

3. 若從汽車的後視平面鏡中看到後方來車的車號是 1250-AM, 則這輛車的正確車號應為下列何者? _____。

(A) MA-0251

(B) MA-0521

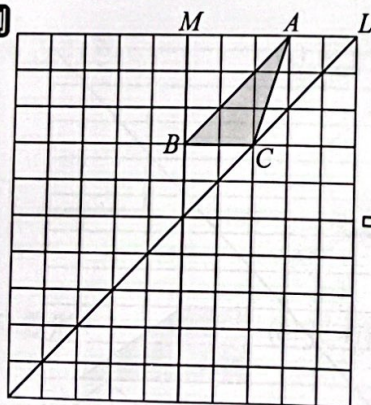
(C) 1250-AM

(D) 1520-AM

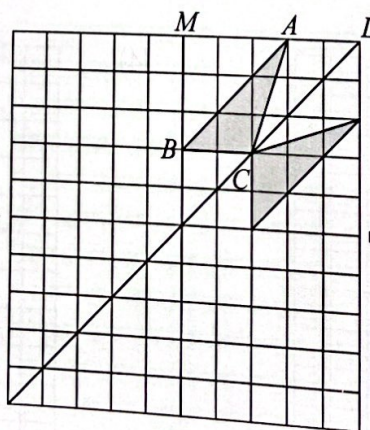
招式 7 多次線對稱

若欲對兩條以上的對稱軸作線對稱圖形，則應依題目要求的先後順序，依序作出其線對稱圖形。對稱的順序不同，做出來的對稱圖形有可能相同，也有可能不相同。

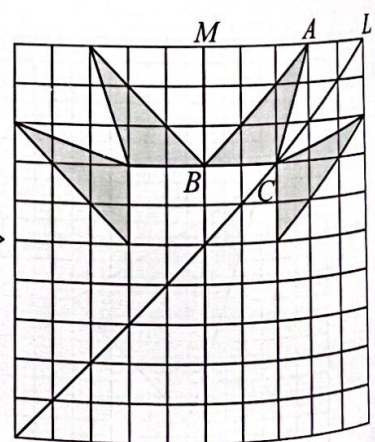
例



圖(一)



圖(二)



圖(三)

如圖(一)，欲畫出 $\triangle ABC$ 依序對稱於直線 L 與 M 的線對稱圖形，其第一步為先對 L 作出線對稱圖形，如圖(二)所示；第二步再對 M 作出線對稱圖形，如圖(三)所示。另外同學們可練習先對再對 L 作出線對稱圖形，該例中，其結果與前者不同。

靈巧度：★★
 難易度：★★★
 必考度：★★

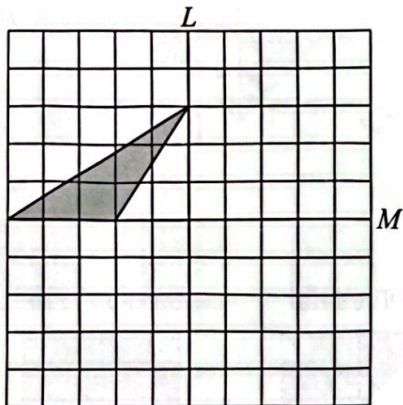


同學們有沒有發現：如果兩條對稱軸本身互相垂直，那麼先對哪一條做線對稱圖形，其結果均是一樣的(如以下的(1)~(4)小題)；反之，則有所不同(如以下的(5)~(6)小題)。

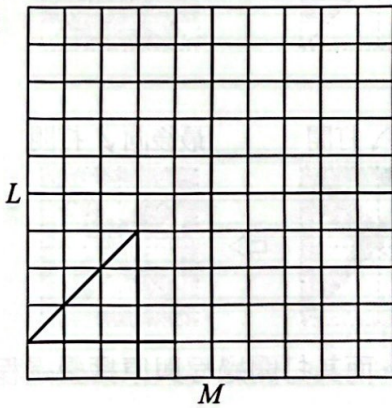
1. 畫出下列各已知圖形依序對稱於直線 L 與 M 的線對稱圖形。

重要

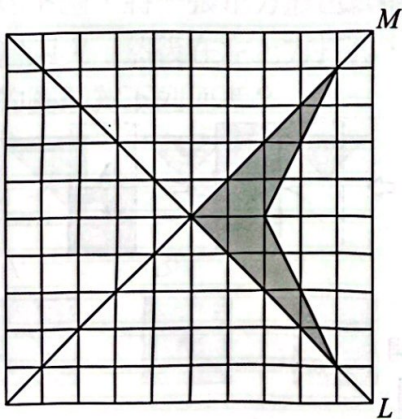
(1)



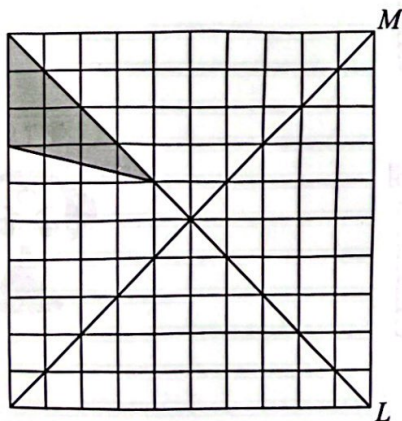
(2)



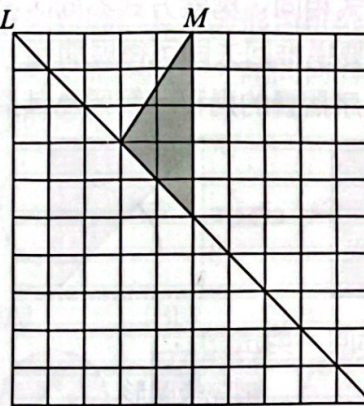
(3)



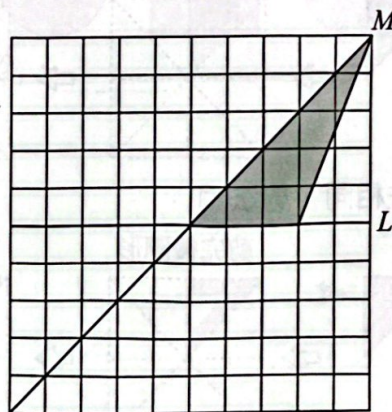
(4)



(5)



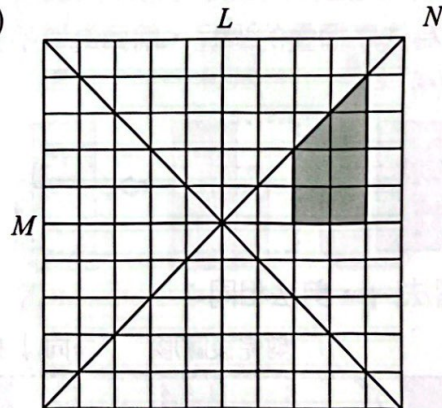
(6)



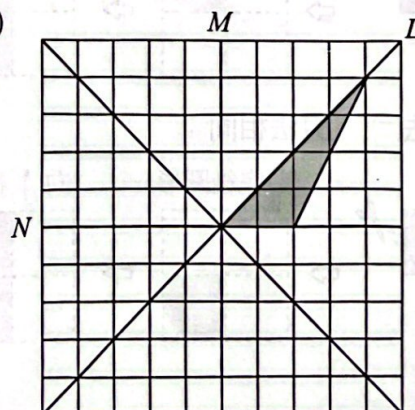
2. 畫出下列各已知圖形依序對稱於直線 L 、 M 與 N 的線對稱圖形。

進階

(1)

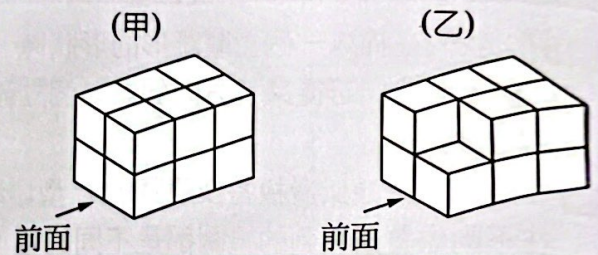


(2)



3. 前視圖與後視圖必互為左右線對稱圖形；右視圖與左視圖也必互為左右線對稱圖形。因此我，通常只畫前視圖，即可得知後視圖長相；只畫右視圖，即可得知左視圖長相。
4. 若給一個立體圖形，必可繪出其三視圖，反之，若先給三視圖，是無法推測出原立體圖形的準樣貌，因其為非唯一。

例 我們以右側(甲)(乙)兩個簡單的立體圖形來舉例說明，它們的前視圖是一樣的；右視圖也是一樣的；就連上視圖也通通都一樣，但(甲)(乙)卻是兩個不同的立體圖形呢！

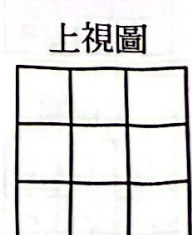
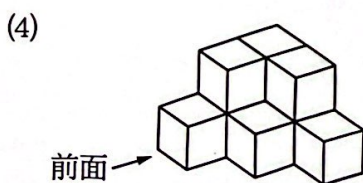
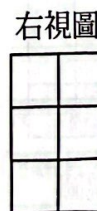
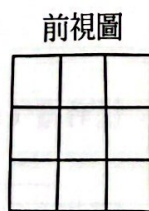
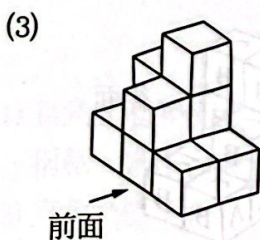
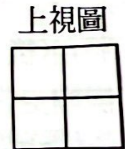
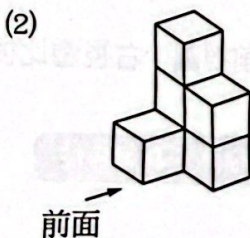
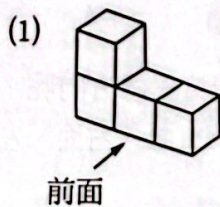


型題：★★★★★
難易度：★★
必考度：★★★★★



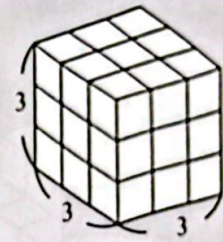
這個單元是新課綱新增的，能與生活經驗結合，難度不高，但也考驗你的空間與體概念，準備好一起挑戰了嗎？Let's go!

1. 請畫出下列各立體圖形的三視圖。



招式 2 常見的 $3 \times 3 \times 3$ 立體圖形的三視圖

在本章節的所有立體圖形中，又以 $3 \times 3 \times 3$ 的立體圖形最為常見，如右圖，是由 27 塊小正方體堆疊而成，若不疊滿，則會創造出千變萬化、形狀各異的立體圖形，此時即會討論它的三視圖。



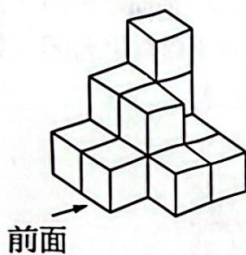
難度：★★★★★
題意：★★★★
心算：★★★★★



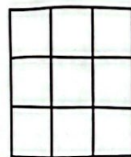
看起來很難，實際上是紙老虎一隻，簡單啦！

1. 請畫出下列各立體圖形所指定的視圖。

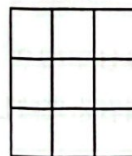
(1)



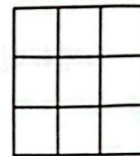
前視圖



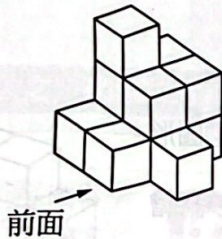
右視圖



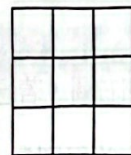
上視圖



(2)



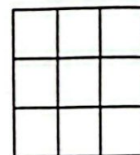
左視圖



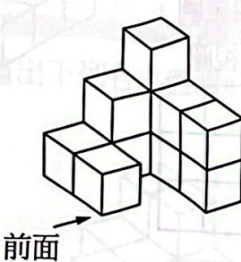
後視圖



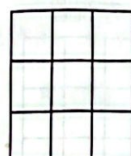
上視圖



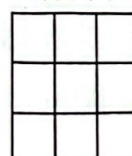
(3)



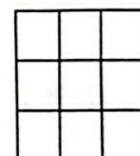
前視圖



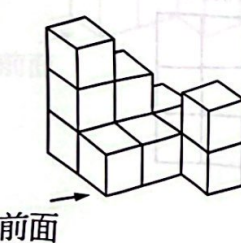
右視圖



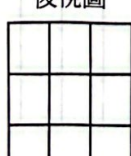
上視圖



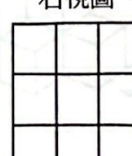
(4)



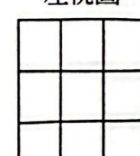
後視圖



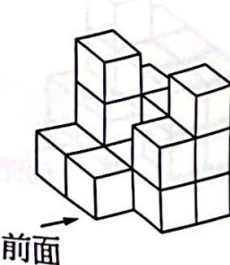
右視圖



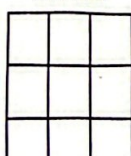
左視圖



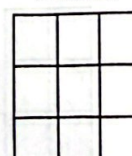
(5)



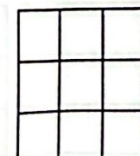
前視圖



上視圖

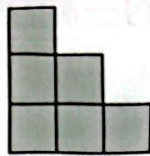
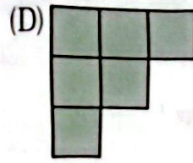
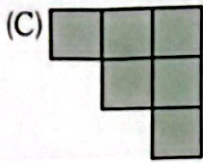
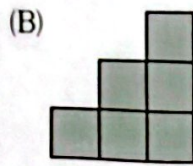
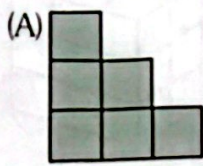


左視圖



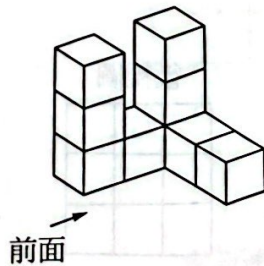
2. 已知右圖為某立體圖形的前視圖，則其後視圖為下列何者？

重要



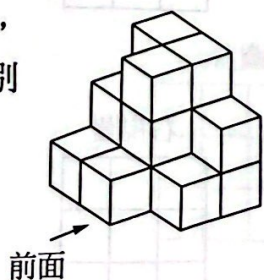
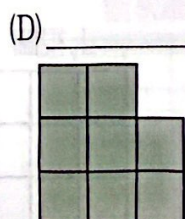
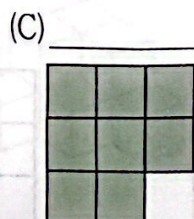
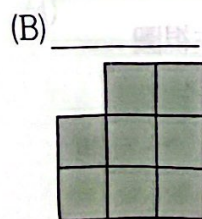
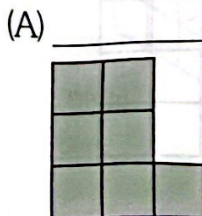
3. 如下圖，有哪些視圖看起來像 U 字型？

_____；有哪些視圖看起來像 L 字型？_____。

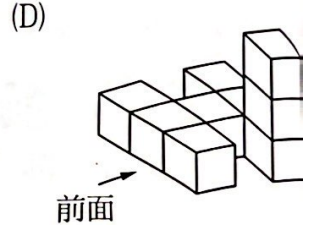
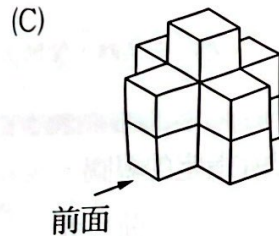
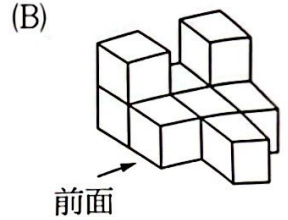
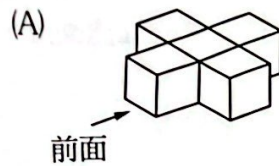


4. 已知一個立體圖形如右，試判斷下列四個圖形分別為哪一種視圖。

重要



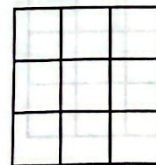
5. 已知下列各立體圖形均由小塊的正方體堆疊而成，則有哪些立體圖形的前視圖與右視圖恰好相同？_____。



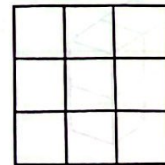
6. 如右圖，若已知該立體圖形的前視圖為 ，請繪出該立體圖形的其他視圖。

進階

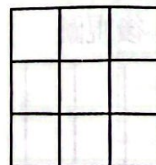
左視圖



右視圖



後視圖



上視圖

