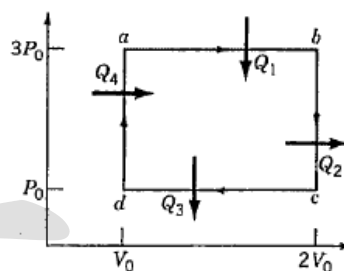


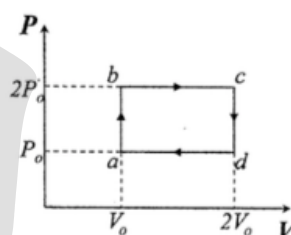
10. One mole of an ideal monatomic gas is taken around the reversible cycle shown in Figure.1 (on the right). What is the efficiency of this "heat engine"?
- (A) 4/21; (B) 5/14; (C) 6/11; (D) 7/34; (E) None.



同物理作業練習題，命中率 100%

5. One mole of monatomic ideal gas is used as the working substance of an engine that operates the reversible cycle $abcd$ shown in the figure. What is the efficiency of this engine?

- (A) 1/2 (B) 1/4 (C) 2/11
(D) 2/13 (E) None of the above.



11. A point charge Q is placed at one corner of a Gaussian surface in the form of a cube of side L . What is the total "electric flux" through this Gaussian surface in terms of Q/ϵ_0 ?
- (A) 0; (B) 1/8; (C) 3/4; (D) 5/6; (E) None.

同講義(四)P10，命中率 100%

2-1在真空中取一邊長為 a 的正立方體。在其一頂點A置一點電荷 q ，求 (a)通過此立方體含頂點A之一平面的電通量 (b)不含頂點A之一平面的電通量。

19. A better resolution for the two headlights of a car in a picture can be achieved by reducing (A) the separation of the headlights; (B) the wavelength of light; (C) the aperture diameter of the camera lens; (D) All; (E) None.

同講義(七)P37，命中率 100%

Rayleigh's criterion

若兩光源之間距離變小時， θ 慢慢變小，則 y 也會慢慢變小，恰好可以辨別出兩繞射條紋的角度，我們稱之此角度為 θ_R ，則 y 就稱為 resolution element 或稱 diffraction limit。則有，

$$\because \theta \rightarrow 0, \sin \theta \cong \tan \theta \cong \frac{y}{x} \Rightarrow y = x\theta$$

$$\sin \theta = 1.22 \frac{\lambda}{d} \approx \theta, \because \theta \rightarrow 0 \text{ (鑑別角)}, \text{ 其中 } d \text{ 為圓孔直徑。}$$

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