電腦圖學期末考（數位二，總分 100 分）

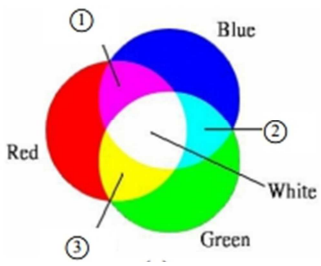
系級：_____ 學號：_____ 姓名：_____

一、(10 分)解釋名詞

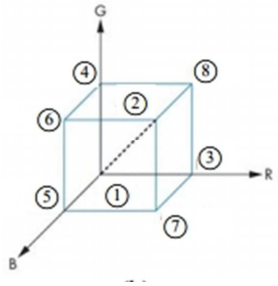
1. FullHD1080p

2. OpenGL、OpenGL ES、WebGL (請寫出三者差異)

二、(10 分)圖(a)為 additive color model，請填入①②③之色彩名稱；圖(b)為 RGB color model，請填入①②③④⑤⑥⑦⑧之色彩名稱，並說明虛線的意義。



(a)



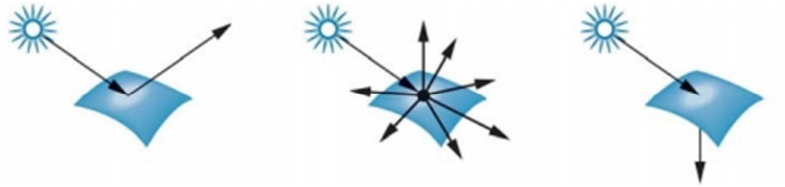
(b)

三、(10 分) WebGL 提供六種 coordinates：①Clip coordinates ②Eye (or camera) coordinates ③Normalized device coordinates ④Model coordinates ⑤Windows (or screen) coordinates ⑥Object (or world) coordinates，請排列出正確的順序。

四、(10 分) Affine transformation 包括哪四種 transformation?

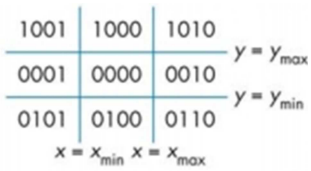
五、(10 分)三角形具備哪三種特性，因此可以得到正確的 rendering?

六、(10 分)一般而言，光源與物體表面的互動(light-material interactions)可分成三種，請寫出其名稱。

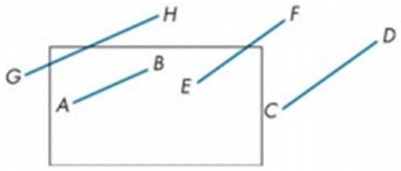


(a) (b) (c)

七、(10 分)圖(a)為 Cohen-Sutherland 所提出之 outcodes。請以圖(b)為例，說明線段 AB, CD, EF, GH 如何以 outcode 判別為 accepted、rejected 或 clipped?



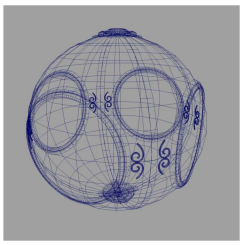
(a)



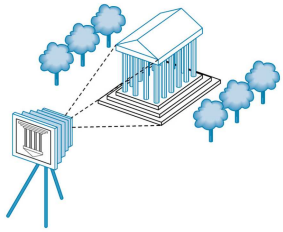
(b)

八、(30 分)請在下列各圖中，寫出一項對應之專有名詞或函數。註：可參考下列各項，但勿重複。

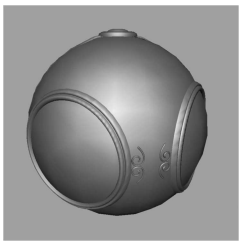
Subtractive color model	z-buffer	Modified Phong model	Trimetric view
View-reference point (VRP)	Raytracing	Phong shading	Wireframe
Rasterization	Flat shading	Perspective projection	glOrtho()
Isometric view	Synthetic camera model	View-plane normal (VPN)	Texture mapping
Analysis camera model	Smooth shading	Graphics pipeline	Environment mapping
Frame Buffer	Radiosity	Gouraud shading	Orthographic projection
Additive color model	Bump mapping	gluPerspective()	RGB color model
Dimetric view	glFrustum()	Hidden surface removal	Projection normalization



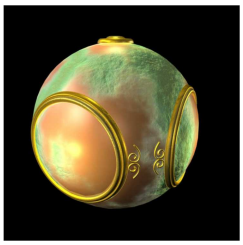
(a)



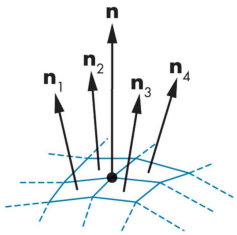
(b)



(c)

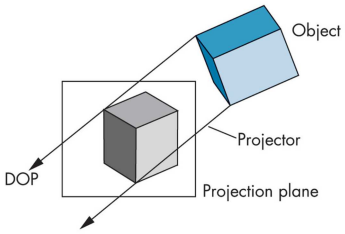


(d)



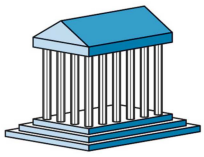
(e)

(f)

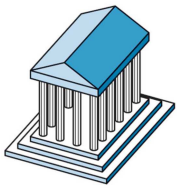


(g)

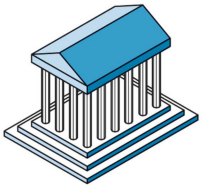
(h)



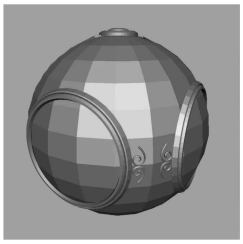
(i)



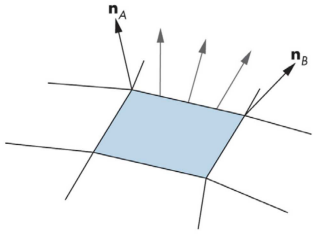
(j)



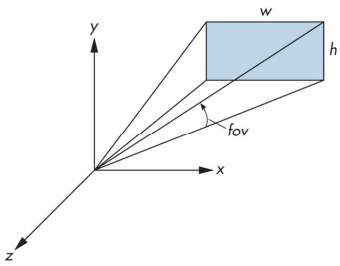
(k)



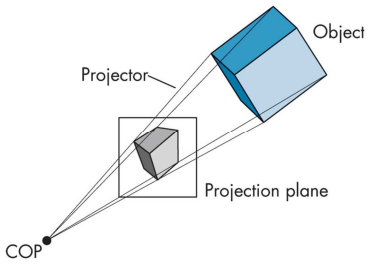
(l)



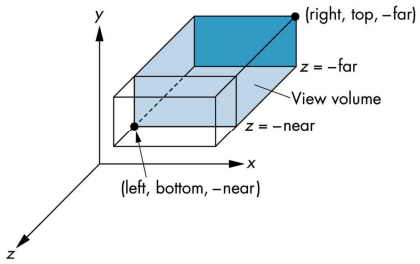
(m)



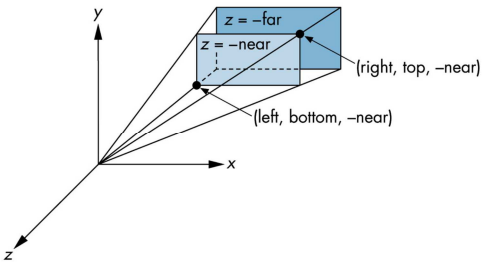
(n)



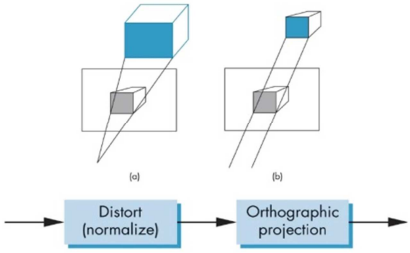
(o)



(p)



(q)



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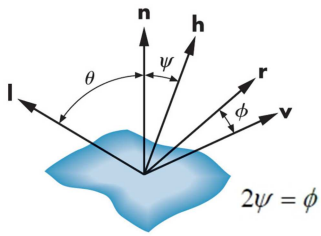

(s)