Find the equation of the plane containing the point (2, −3, 4) and orthogonal to the vector $\mathbf{A} = 8\mathbf{i} - 6\mathbf{j} + 4\mathbf{k}$. [103雲科大電機4(2)]

[解]設P(2, −3, 4)，平面上任一點為X($x$, $y$, $z$)，則

$$\mathbf{A} \cdot \overrightarrow{\mathrm{PX}} = 0 \Rightarrow (8\mathbf{i} - 6\mathbf{j} + 4\mathbf{k}) \cdot [(x-2)\mathbf{i} + (y+3)\mathbf{j} + (z-4)\mathbf{k}] = 0$$

$$8(x-2) - 6(y+3) + 4(z-4) = 0 \Rightarrow 4x - 3y + 2z = 25$$