Find the eq^n of plane passing through the intersection of planes A and B and passing through the point (a,b,c).

→ Make λ condition using A an B.
Put values of a, b, c in place of x, y, z in that eq^n

(4) Find the eq^n of plane passing through the intersection of planes A and B and ~~parallel to the plane C~~ is at unit distance from origin.

→ Make λ condition using A and B

$$\text{Distance} = \frac{|Ax_1 + By_1 + Cz_1 + d|}{\sqrt{A^2+B^2+C^2}}$$

(x, y, z_1) – Points (here (0,0,0))
(A, B, C) – λ vali eq^n k coefficients of x, y, z

(5) Find the eq^n of plane passing through the intersection of planes A & B and whose x-intercept is twice its z-intercept.

→ Make λ condition using A and B. Then make in intercept form – $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$. Then use which is given in question.

Angle b/w two planes – $\cos\theta = \frac{|\vec{n_1}\cdot\vec{n_2}|}{|\vec{n_1}||\vec{n_2}|}$ (Angle b/w their normals)

Condition for two planes to be parallel – $\vec{n_1} \times \vec{n_2} = 0$ or $\vec{n_1} = \lambda\vec{n_2}$

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$$

Condition for two planes to be perpendicular – $\vec{n_1}\cdot\vec{n_2} = 0$

$$a_1a_2 + b_1b_2 + c_1c_2 = 0$$

Distance b/w a point and a plane –
$P(x_1, y_1, z_1)$ $\quad Ax_1 + By_1 + Cz_1 + d = 0$

$$\text{Distance} = \frac{|Ax_1 + By_1 + Cz_1 + d|}{\sqrt{A^2+B^2+C^2}}$$

Distance b/w two $\parallel^{el}$ planes – $\frac{|d_1 - d_2|}{\sqrt{A^2+B^2+C^2}}$

eq^n of plane containing two lines – $(\vec{r} - \vec{a_1})\cdot(\vec{b_1}\times\vec{b_2}) = 0$ or
$(\vec{r} - \vec{a_2})\cdot(\vec{b_1}\times\vec{b_2}) = 0$

$$\begin{vmatrix} x-x_1 & y-y_1 & z-z_1 \\ a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \end{vmatrix} = 0$$