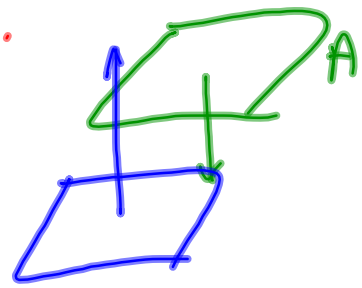
How do we relate planes?

Do Now

A: $2x-3y+5z=10$ $N_A \langle 2,-3,5 \rangle$

B: $-4x+6y-10z=1$ $N_B \langle -4,6,-10 \rangle$

Find normal vectors of A & B.



$A \parallel B$

$A: 2x - 3y + 5z = 10$

$C: x - y + z = 5$

Find an eq. of intersection

Let $x = 0$, $\begin{cases} -3y + 5z = 10 \\ -y + z = 5 \end{cases}$ $2z = -5$ $\quad z = \frac{-5}{2}$

$y = \frac{-15}{2}$

$\left(0, \frac{-15}{2}, \frac{-5}{2}\right)$

Let $x = 1$, $\begin{cases} -3y + 5z = 8 \\ -y + z = 4 \end{cases}$ $2z = -4$ $\quad z = -2$

$y = -6$

$(1, -6, -2)$

$r(t) = \langle 1, -6, -2 \rangle + t\langle 1, \frac{3}{2}, \frac{1}{2} \rangle$

A: $x-2y+5z=10$

B: $4x-3y+6z=12$

Let $x=0$, $-2y+5z=10$ and $-3y+6z=12$ $\Rightarrow -6y+15z=30$, $6y-12z=-24$

$3z=6$

$z=2$; $y=0$

$(0,0,2)$

Let $x=1$, $-2y+5z=9$ and $-3y+6z=8$ $\Rightarrow -6y+15z=27$, $6y-12z=16$

$-3y+22=8$

$-3y=-14$

$y=14$

$3z=11$

$z=11/3$, $y=\frac{14}{3}$

$(1, \frac{14}{3}, \frac{11}{3})$

$r(t)=\langle 0,0,2\rangle + t\langle 1, \frac{14}{3}, \frac{5}{3}\rangle$