12.5 Lines and Planes (in 3D)  
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Line L  
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Summing  
Line L  
thru 
$$P_{2} = (X_{0}, Y_{0}, Z_{0})$$
  
in direction of  $\vec{v} = \langle a, b, c \rangle \neq 0$   
with normal  $\vec{n} = \langle a, b, c \rangle \neq 0$   
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in direction of  $\vec{v} = \langle a, b, c \rangle \neq 0$   
 $\vec{v}$   
 $\vec$ 



Ex 3 The quation of the line & peakled to interaction of planes  

$$3\pi + y + z = 5$$
 and  $x - 2y + 3z = 1$   
 $P_1$  has normal  $\overline{n}_1 =$   $P_2$  has normal  $\overline{n}_2 =$   
and & peakled three the point (4,2,1) is , where  $-\infty < t < \infty_2$ ,  
 $\overline{R}(t) = < -, -, > + t < -, -, > - >$   
 $P_2$   
 $P_4$   
 $P_4$ 

Ex 6 Find the distance d(P, P2) btw the 2 planes: 12,5,5 and  $P_1: x+y=4$  < has a normal  $\vec{n}_1 = \langle -i, -i \rangle \Rightarrow P_1 = P_2$   $P_2: x+y=10$  < has a normal  $\vec{n}_2 = \langle -i, -i \rangle$ • An easy to find pt on  $P_1$  is  $P_1 = (-, 0, 0)$ An easy to find pt on  $P_2$  is  $P_2 = (-, 0, 0)$ 8' SO P1P2 = · Picture time!  $P_{2} = P_{1}(4, a, c)$   $P_{2} = P_{2}(10, q, c)$ •  $d(B_1, B_2) \xrightarrow{lock} at$  || POd7 -Ex 7 We have done some harder examples, (e.g. 2(P, , P2)) Read and work examples in book many much easier than in class. This Frnich 12.5. Any Questions?