Line is given as intersection of planes:

$$\begin{cases} 2x-3y=0 \\ 5y+2z=0 \end{cases} \Rightarrow n_1=(2,-3,0),\ n_2=(0,5,2)$$

Then vector on the line is cross product of normales: $n=\begin{vmatrix} i & j & k \\ 2 & -3 & 0 \\ 0 & 5 & 2 \end{vmatrix}=-6i-4j+10k=(-6,-4,10)$

Also vector $(3,2,-5)$ is on the line. If we put x=3 in system then y=2, and z=-5. It is point on the line.

Parameterization of the line:

$$\begin{cases} x=3t+3 \\ y=2t+2 \\ z=-5t-5 \end{cases}$$

We have to find some t, that distance to 2 given points will be the same.

$$d_1^2=(3t+3)^2+(2t+2+2)^2+(-5t-5+4)^2$$

$$d_2^2=(3t+3-2)^2+(2t+2+1)^2+(-5t-5+1)^2$$

$$d_1^2=d_2^2$$

$$(3t+3)^2+(2t+3)^2+2(2t+3)+1+(-5t-4)^2+6(-5t-4)+9=$$

$$=(3t+3)^2-4(3t+3)+4+(2t+3)^2+(-5t-4)^2$$

$$2(2t+3)+1+6(-5t-4)+9=-4(3t+3)+4$$

$$4t-30t+6+1-24+9=-12t-12+4$$

$$-26t-8=-12t-8$$

$$t=0 \Rightarrow (x,y,z)=(3,2,-5)$$

Distance d_1 is radius: $r=\sqrt{26}$.

And equation of sphere is $(x-3)^2+(y-2)^2+(z+5)^2=26$