# **It’s not square!**

**Aim:** To check if you were fully paying attention when you were taught how to manipulate the 3D equation of a line

## Steps

1. Write down the co-ordinates of a point (x1,y1,z1), where x1 ≠ y1≠ z1≠ 0. Label it A.
2. Write down the co-ordinates of a different point (x2,y2,z2), where x2 ≠ y2≠ z2≠ 0. Label it B.
3. Calculate |AB|
4. Find the equation of the line (L1) going through A and B
5. Find the equation of a perpendicular line (L2) going through A
6. Find the equation of a perpendicular line (L3) going through B
7. C is a point on L2 such that |AB|=|AC|
8. D is a point on L3 such that |AB|=|BD|
9. Calculate |CD|
10. Find the equation of the line (L4) going through C and D

Reflection

* Review your answers to steps 9 and 10.
* Use you results to justify whether or not you have created a square.
* Which was the critical step in determining whether you would end up with a square?

Extension

Would it be possible to construct the equations of the edges of an equilateral triangle in 3D space? What limitations might you have to make?