

YOU & MATHS **Dependent or inconsistent?** Consider the system $\begin{cases} x + y = a + b \\ x - y = a - b \end{cases}$. Are there values of a and b for which the system is dependent or inconsistent? If so find them, if not explain why not.

No, the system is always consistent and independent, no matter what values a and b have; the determinant of the matrix of coefficients is:

$$D = \begin{vmatrix} 1 & 1 \\ 1 & -1 \end{vmatrix} = 1 \cdot (-1) - 1 \cdot 1 = -2 \neq 0.$$