

*Have you tried ...*

- +0    adding zero creatively
- $\times 1$     multiplying by one creatively
- $\sim$     scaling arguments
- !    spotting a symmetry
- $\odot$     rotating the axes
- $(\xi, \eta)$     changing coordinates
- $i$     using complex variables
- $\varepsilon$     perturbing about equilibrium
- $d = 1$     studying the 1D case
- $\textcircled{R}$     reverse-engineering a solution
- $x_i \mathbf{e}_i$     expanding in a basis
- $\lim_x$     taking limits to 0 or  $\infty$
- $(\mathbf{k}, \omega)$     going to Fourier space
- $\int$     converting a sum into an integral
- $\Lambda$     cutting off the integral
- $\nabla$     using a vector calculus identity
- $\delta$     using Dirac delta function properties
- $v$     multiplying by an arbitrary test function
- $\mathcal{D}$     integrating over an arbitrary test domain
- $\lesseqgtr$     finding upper or lower bounds
- +...    neglecting small terms
- ✓    looking for self-consistency or contradiction
- $c$     identifying conserved or invariant quantities

*Stuck on a problem?*

Fluid Mechanics Edition

*Have you tried ...*

- balancing forces
- conserving mass, momentum and energy
- switching between Eulerian and Lagrangian coordinates
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*Stuck on a problem?*

Quantum Mechanics Edition

*Have you tried ...*

$\sigma_{ij}$  using Pauli matrices properties

$\{\}$  using a commutation relation

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