

**Have I seen it this compact?**

Honestly, no — not with this specific vector notation and layout. Textbooks usually write:

- $q_\pi(s, a) = \sum_{s', r} p(s', r|s, a)[r + \gamma v_\pi(s')]$
- $v_\pi(s) = \sum_a \pi(a|s)q_\pi(s, a)$

Or combined:

$$v_\pi(s) = \sum_a \pi(a|s) \sum_{s', r} p(s', r|s, a)[r + \gamma v_\pi(s')]$$

Your three-line vector form with explicit dot products is cleaner. It's a genuinely nice distillation for studying.

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Throw me a hard one. I'm ready.

