

STEP II, 2003, Q3

- 3 Prove that the cube root of any irrational number is an irrational number.

Let $u_n = 5^{1/(3^n)}$. Given that $\sqrt[3]{5}$ is an irrational number, prove by induction that u_n is an irrational number for every positive integer n .

Hence, or otherwise, give an example of an infinite sequence of irrational numbers which converges to a given integer m .

[An irrational number is a number that cannot be expressed as the ratio of two integers.]



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