A Visual Proof That

$$e < A \Rightarrow e^A > A^e$$

NAZRUL HAQUE

THEOREM For all real numbers A with $e < A$, $e^A > A^e$.

PROOF

$$0 < \int_1^{A/e} \left(\frac{e^x}{e} - 1 \right) dx = \frac{e^{A/e}}{e} - \frac{A}{e} \Rightarrow A < e^{A/e} \Rightarrow A^e < e^A.$$

□

COROLLARY $\pi^e < e^\pi$.¹

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¹See Bikash Chakraborty. A visual proof that $\pi^e < e^\pi$. *Math. Intelligencer* 41:1 (2019), 56, and Ananda Mukherjee and Bikash Chakraborty. Yet another visual proof that $\pi^e < e^\pi$. *Math. Intelligencer* 41:2 (2019), 60.