

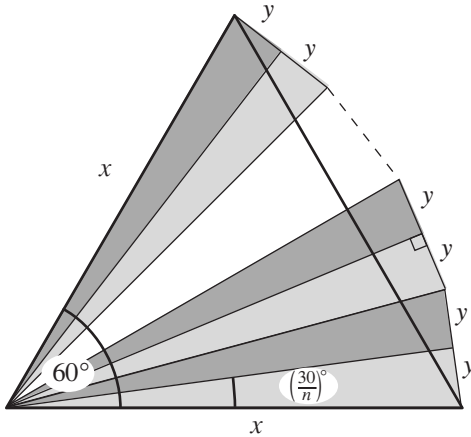
This identity holds for $0 \leq x \leq 1$ by the above argument. A careful calculus computation implies that it holds for each $x \geq -1$.

References

1. M. Hassani, Proof without words, *Math. Gaz.* **105** (July 2021) p. 303.
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106.10 PWW: Trigonometric inequality

For each natural number n , $\sin\left(\frac{30}{n}\right)^\circ \geq \frac{1}{2n}$. Equality holds only for $n = 1$.



$$2ny \geq x \Rightarrow \sin\left(\frac{30}{n}\right)^\circ = \frac{y}{x} \geq \frac{1}{2n}$$

FIGURE 1

Note: This inequality is a particular case of the inequality $\sin \lambda x \geq \lambda \sin x$ that holds for each $x \in [0, \pi]$ and $\lambda \in [0, 1]$.

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