Calculus II

Simplify $\arcsin(\sin(x))$

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2019

Example

Find $\arcsin(\sin(1.5))$.

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- $\frac{\pi}{2} \approx$ **?**

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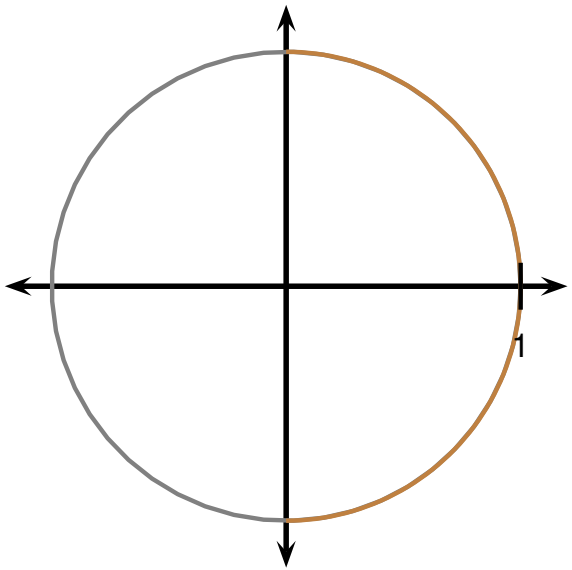
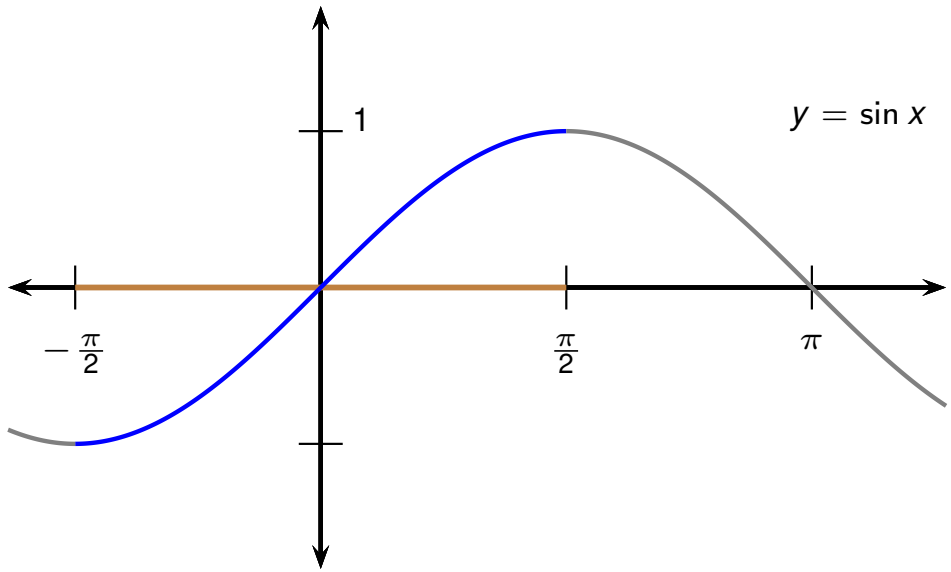
- $\frac{\pi}{2} \approx 1.57$.
- Therefore $-\frac{\pi}{2} \leq 1.5 \leq \frac{\pi}{2}$.
- Therefore $\arcsin(\sin 1.5) = 1.5$.

Example

Find $\arcsin(\sin 2)$.





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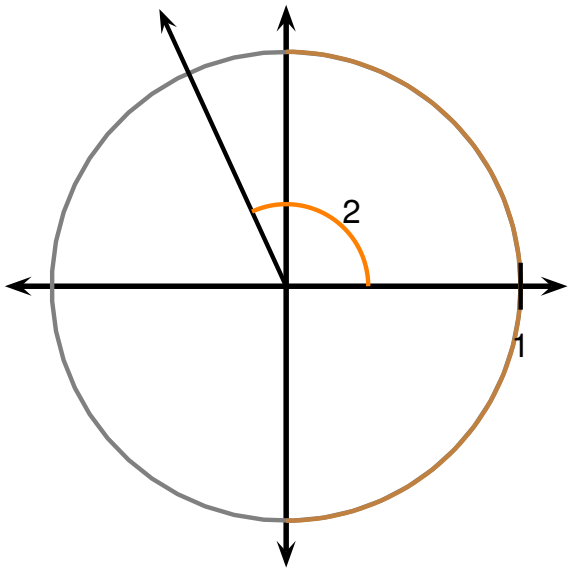

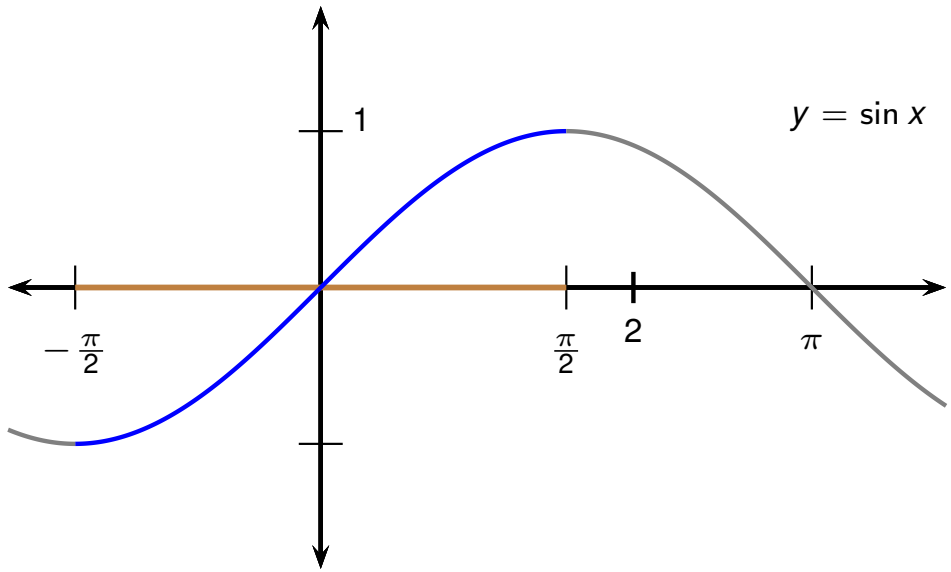

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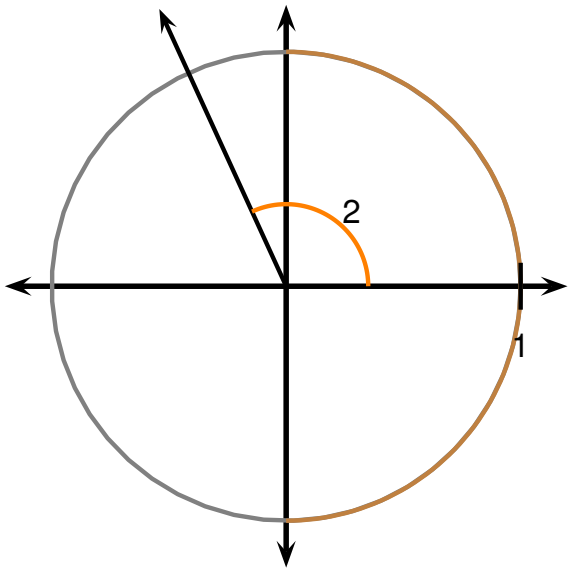

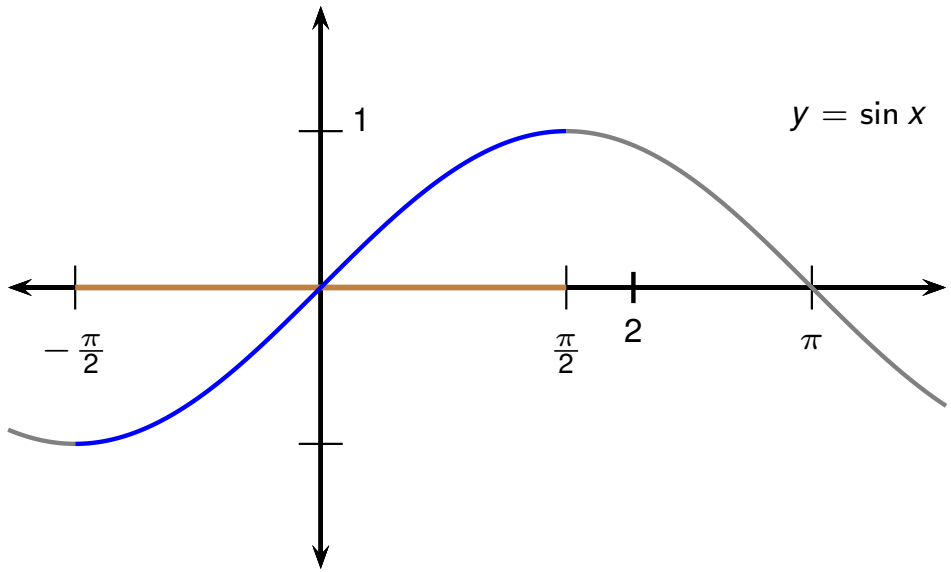

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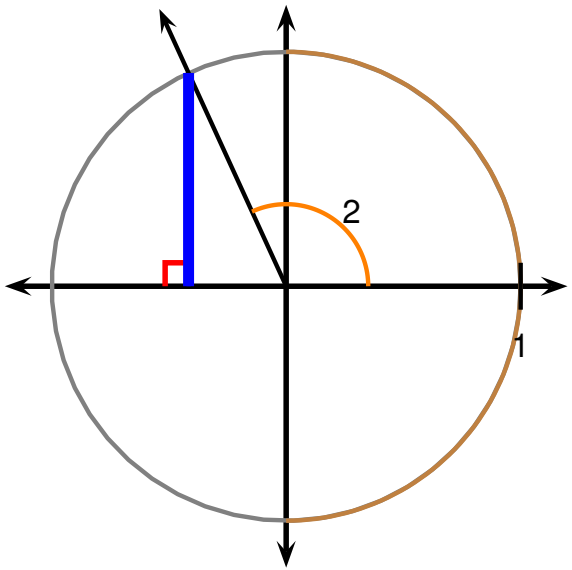

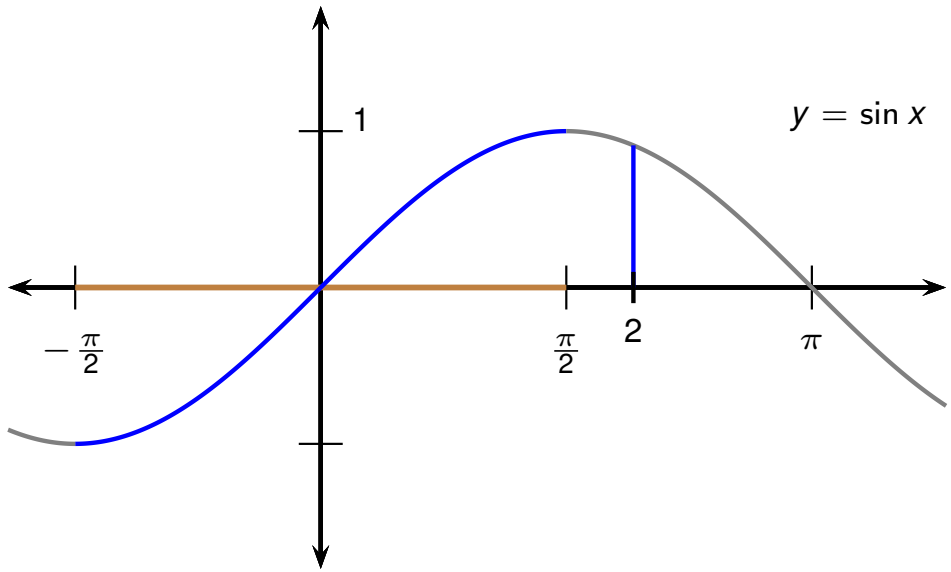

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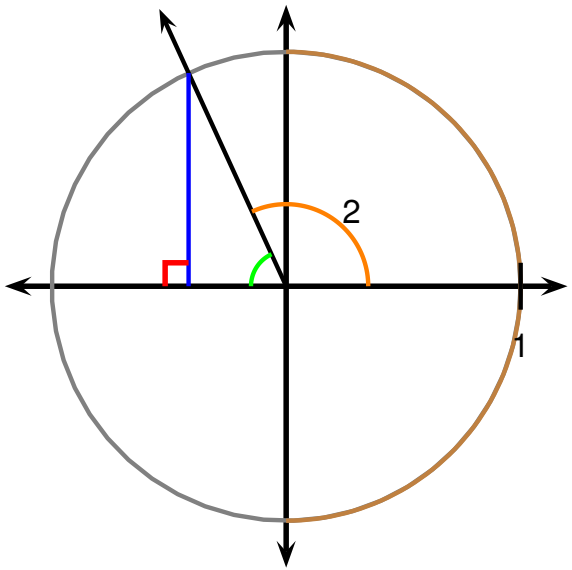

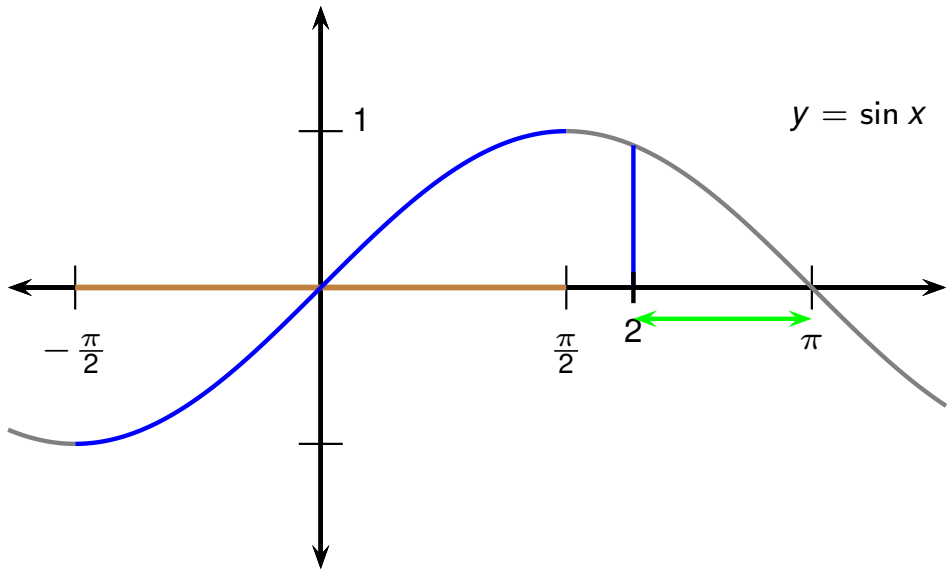

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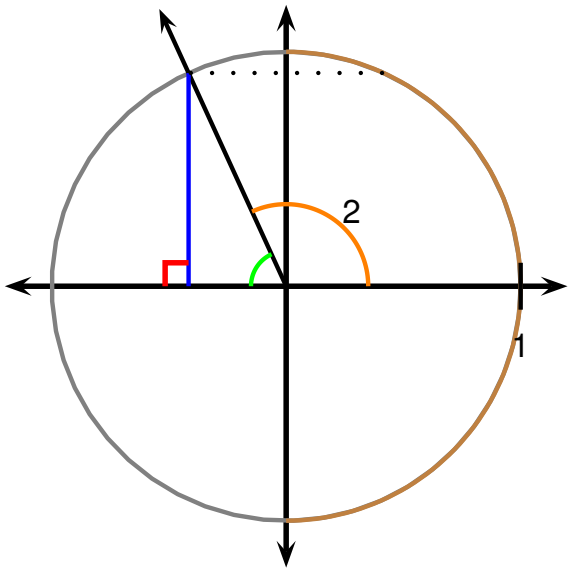

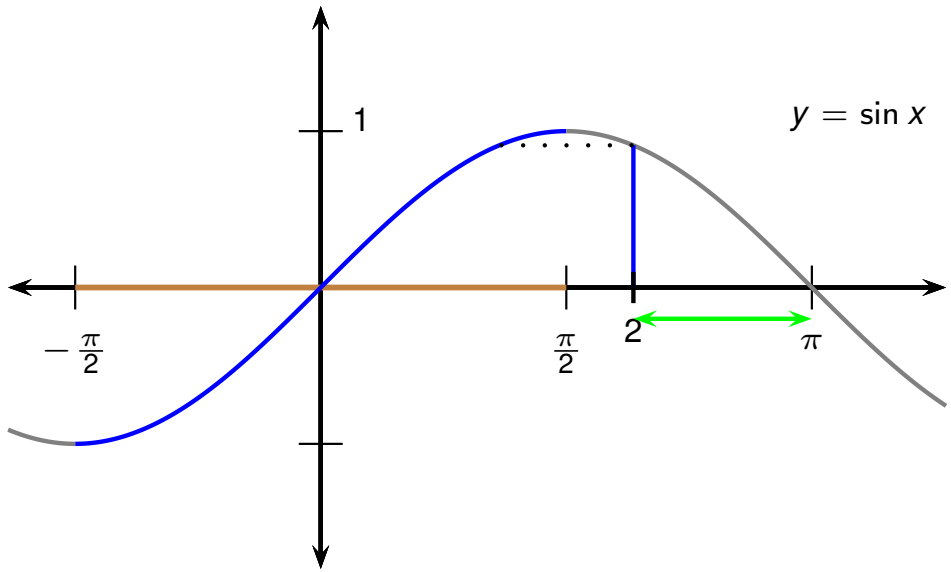

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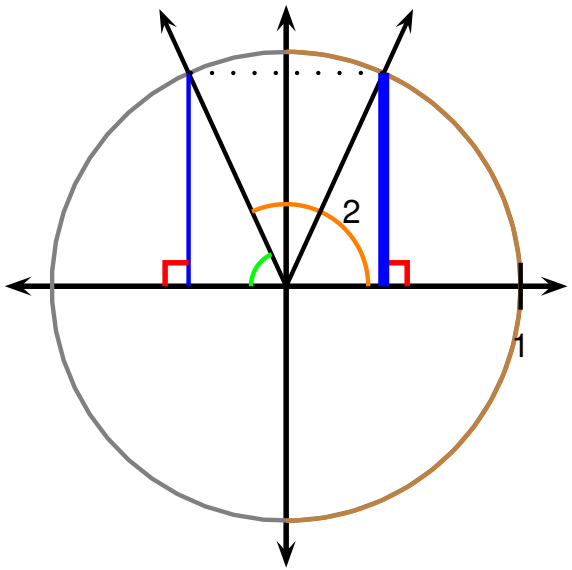

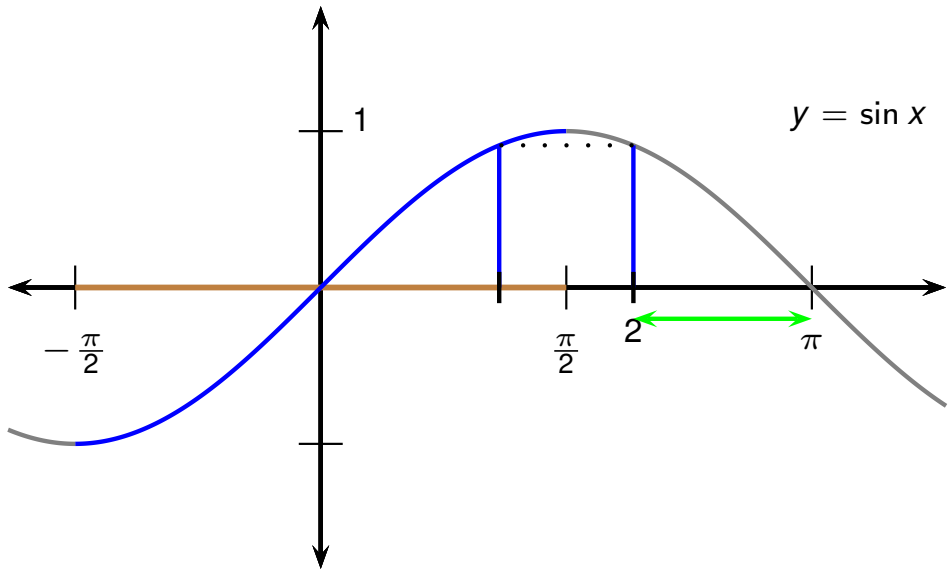

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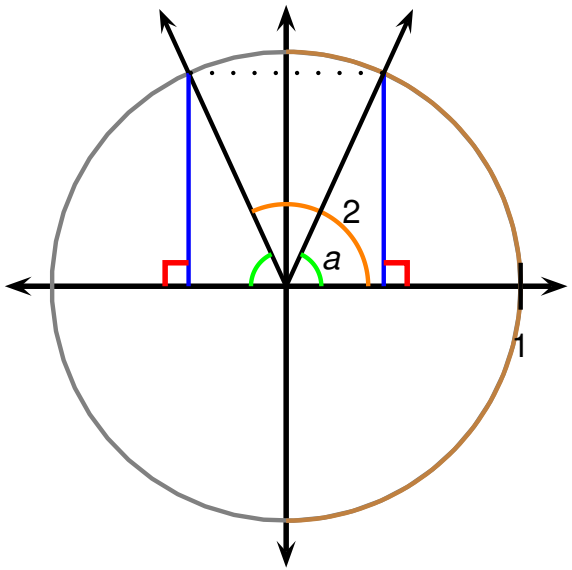

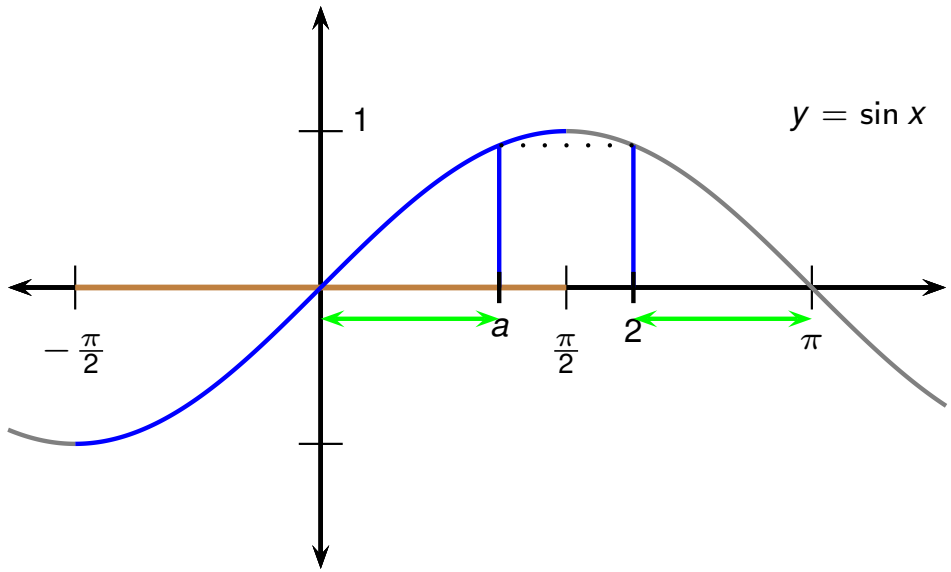

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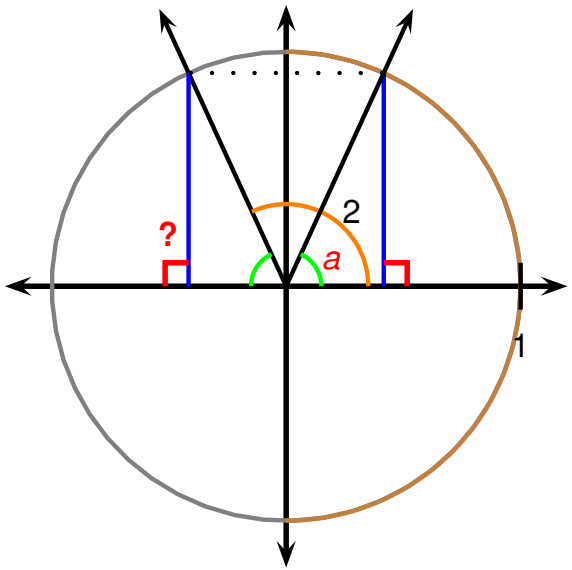
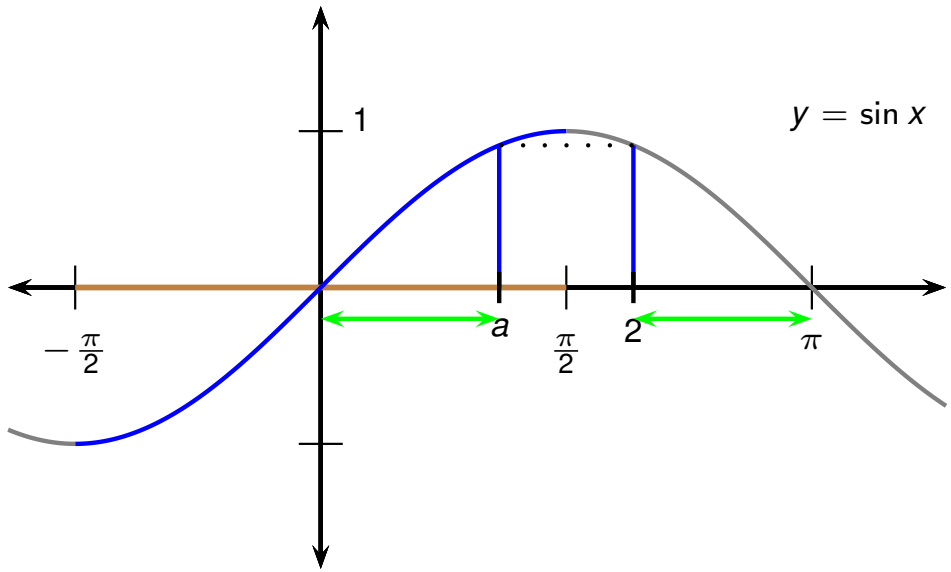
$$a = ?$$





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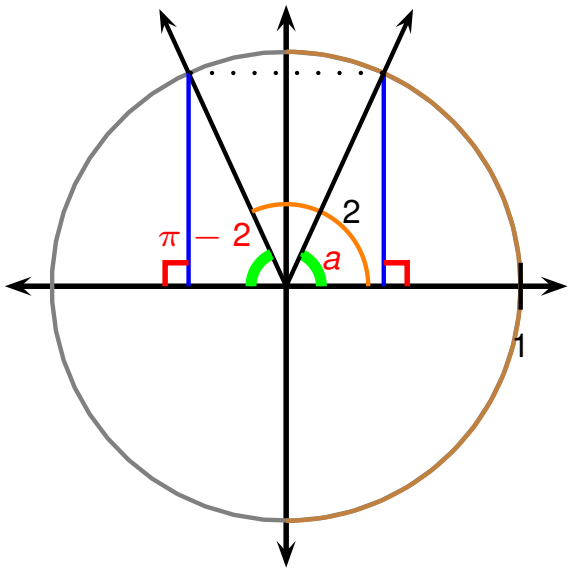
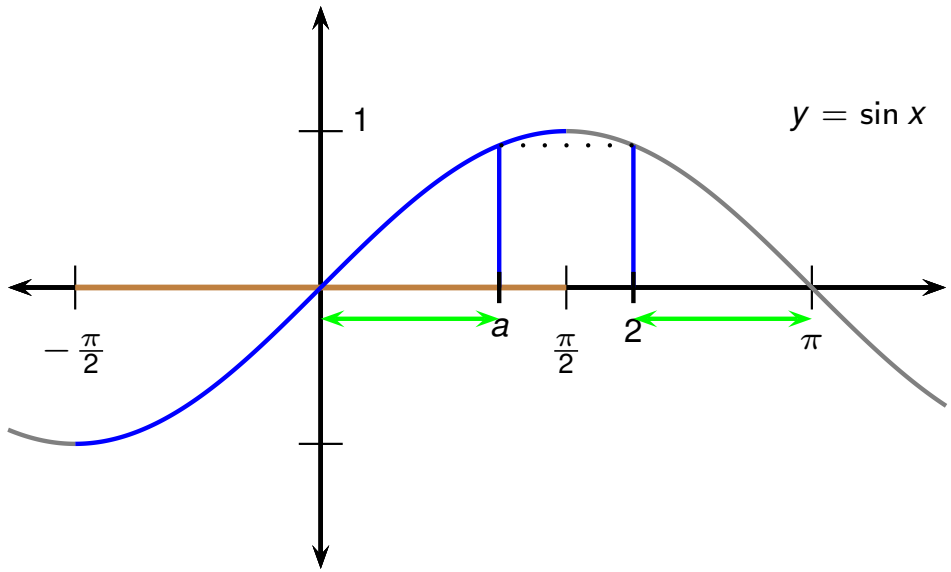
$$a = \pi - 2.$$





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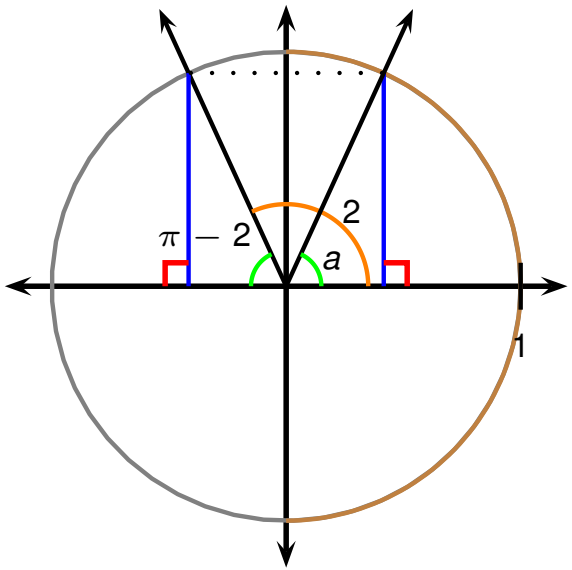
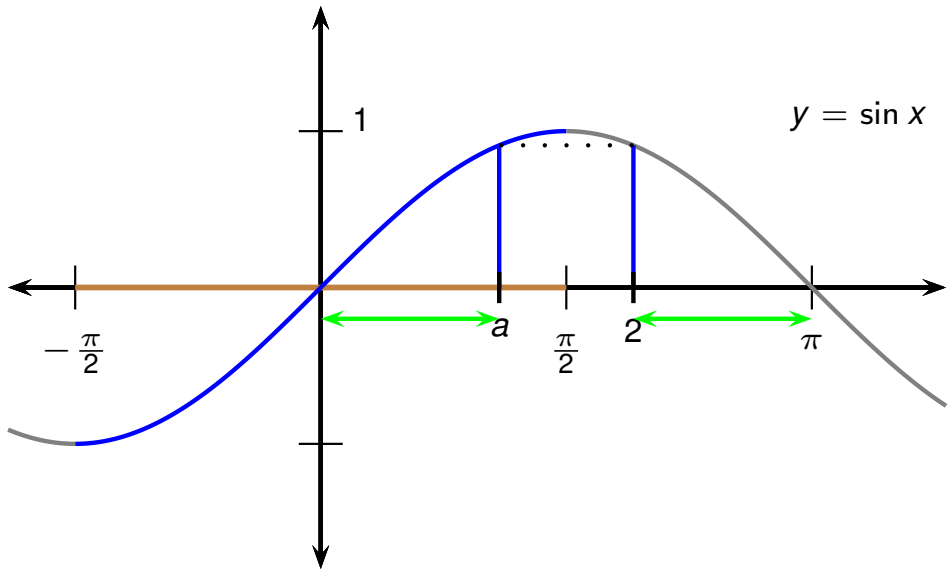
$$\text{Therefore} \quad \arcsin(\sin 2) = \arcsin(\sin a)$$





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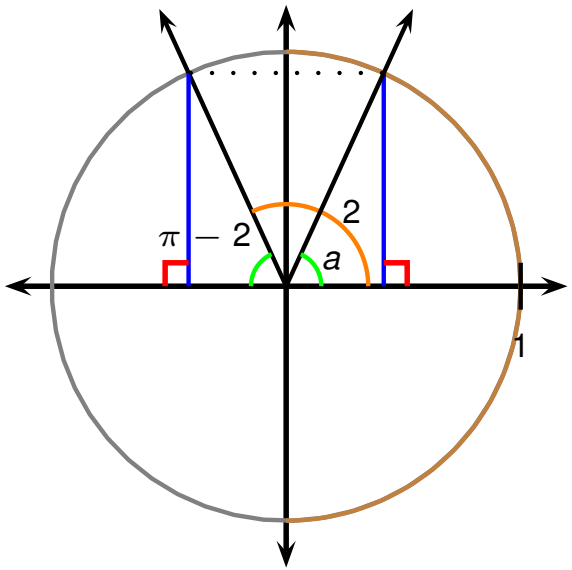

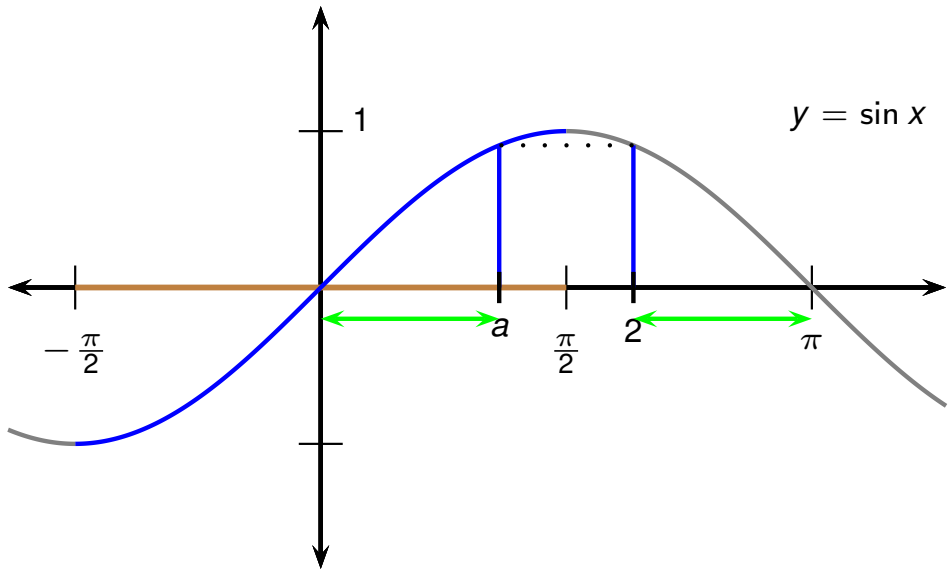

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