

# Precalculus

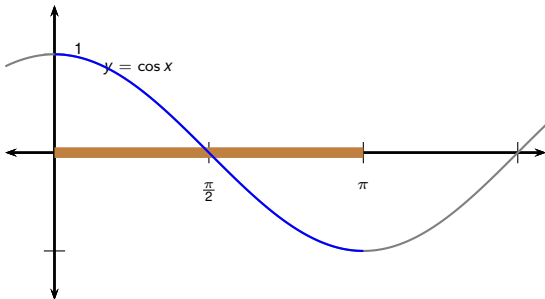
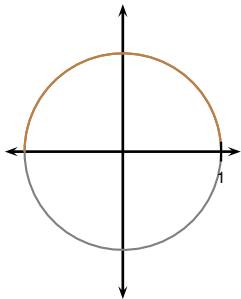
## Simplify $\arccos(\cos(x))$

Todor Milev

2019

## Example

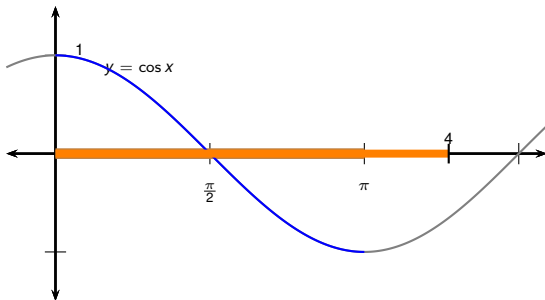
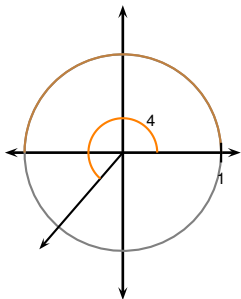
Find  $\arccos(\cos 4)$ .



## Example

Find  $\arccos(\cos 4)$ .

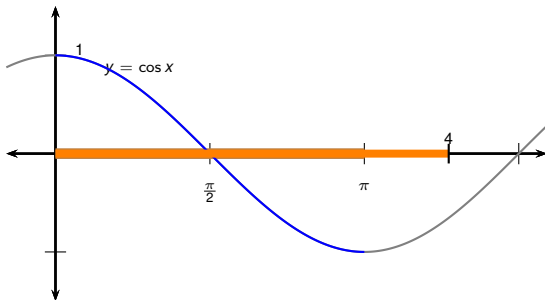
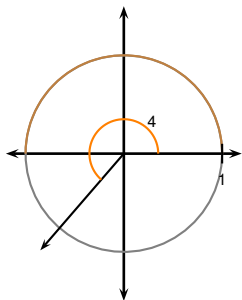
- 4 is not between 0 and  $\pi$ .



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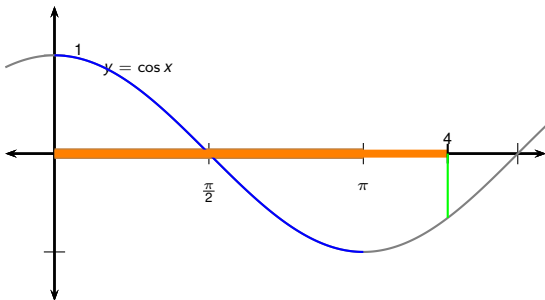
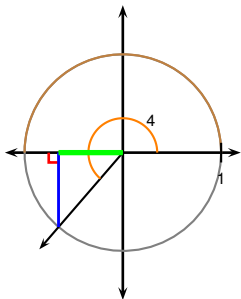
- 4 is not between 0 and  $\pi$ .
- We need the angle  $a$  between 0 and  $\pi$  for which  $\cos 4 = \cos a$ .



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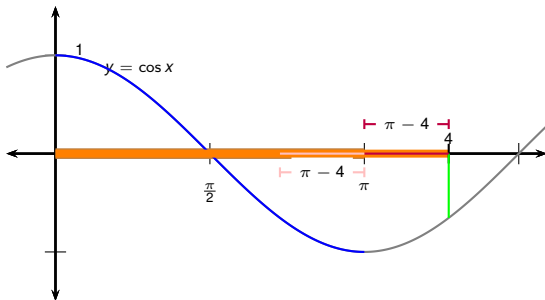
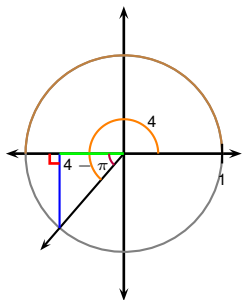
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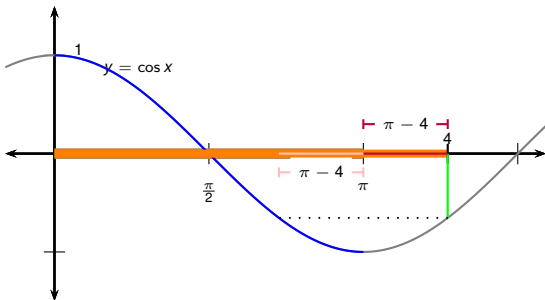
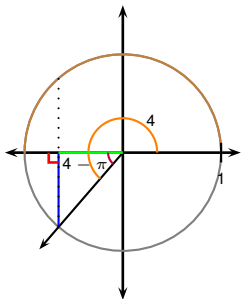
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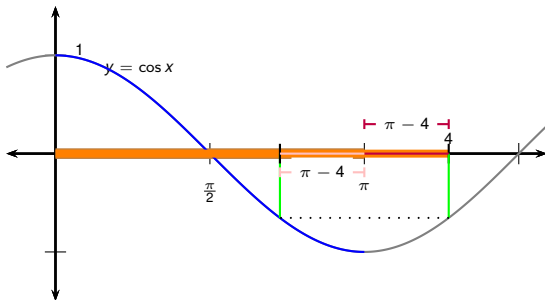
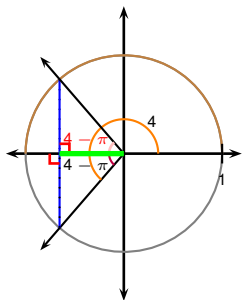
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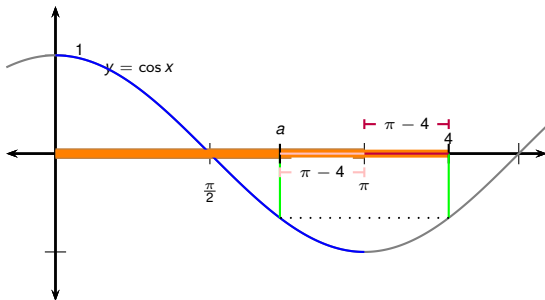
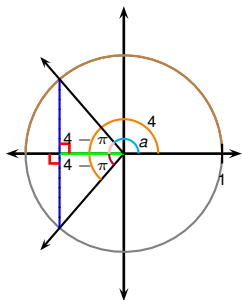




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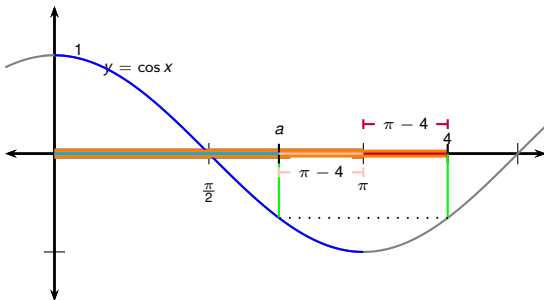
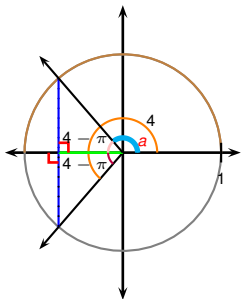


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$$a = ?$$

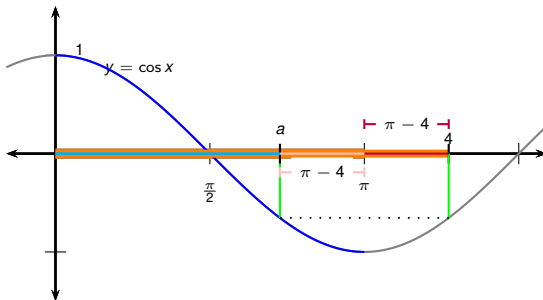
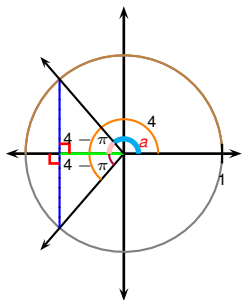


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$$a = \pi - (4 - \pi)$$

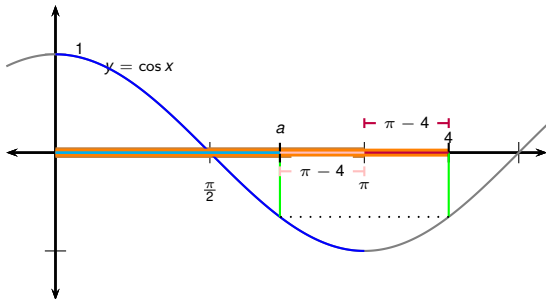
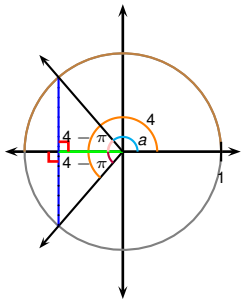


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$$a = \pi - (4 - \pi) = 2\pi - 4$$



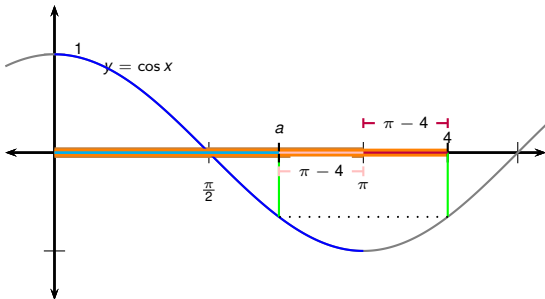
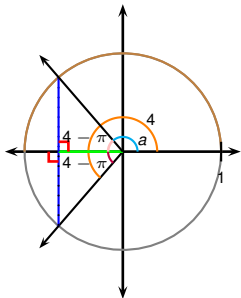
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$$\text{Therefore } \arccos(\cos 4) = a$$



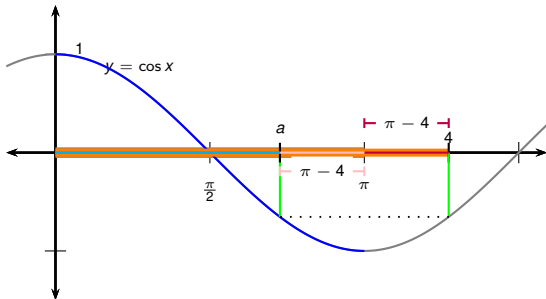
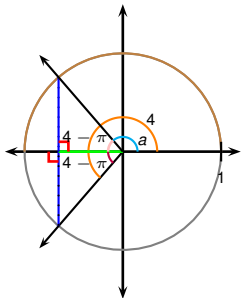
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