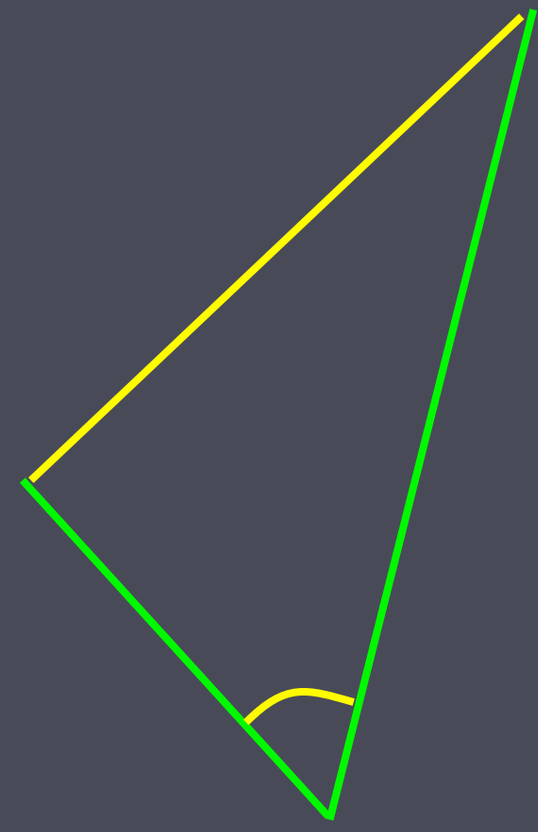
Today

- Inverse trig review
- Derivatives of inverse (trig) functions
- Office hours next week: MWTh 1:30-3:30

Triangle with two sides of fixed length, angle between them changes.



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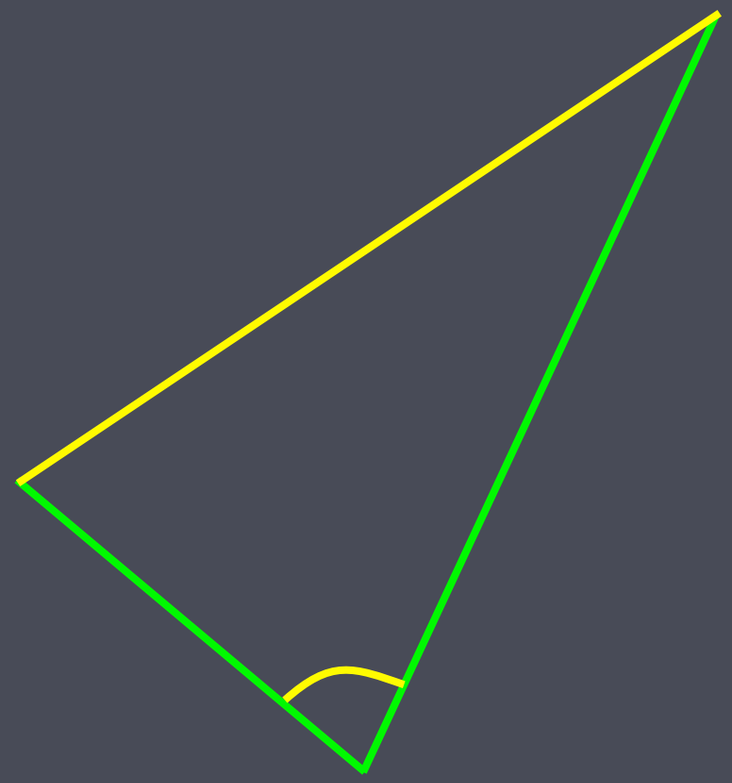

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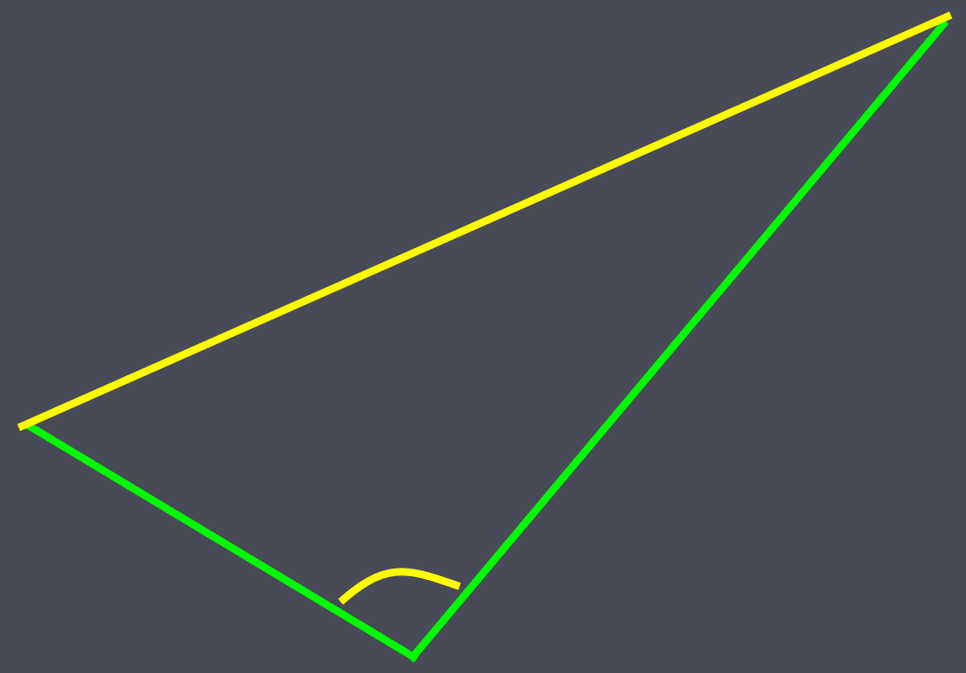

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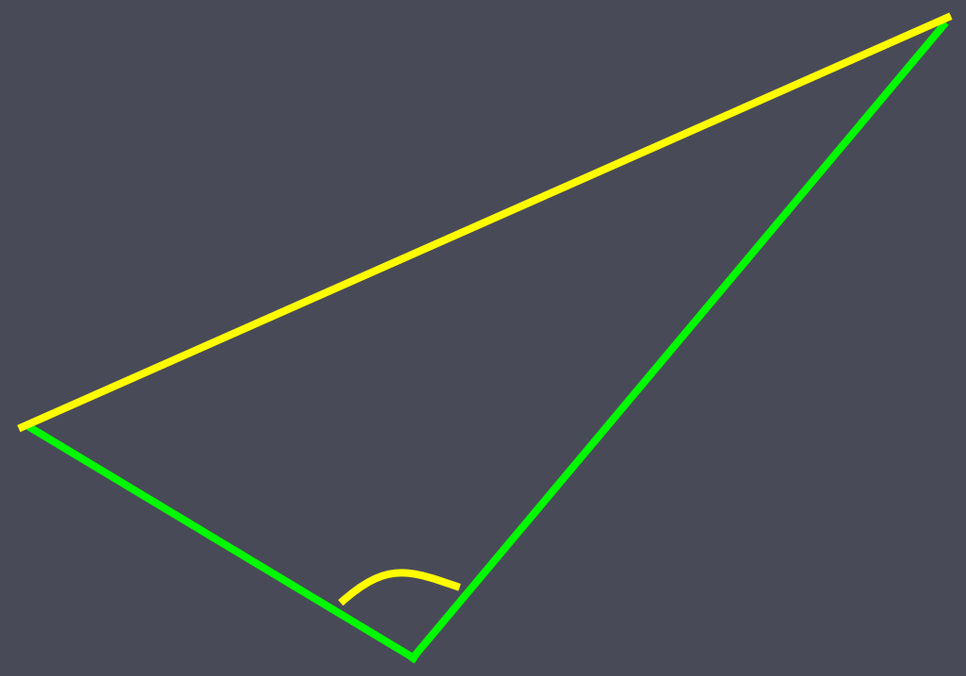
Relate the two changing quantities:

(A) $a^2 = b^2+c^2$

(B) $a^2 = b^2+c^2 - 2bc\ \cos(\theta)$

(C) $a/\sin(A) = b/\sin(B)$

(D) $\sin(\theta) = a/b$



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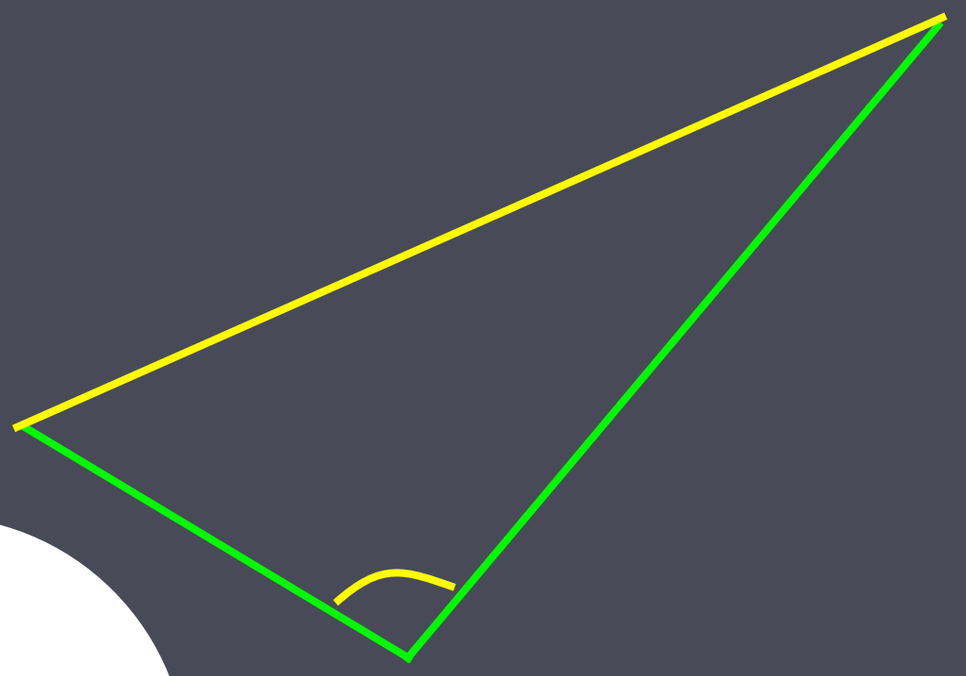
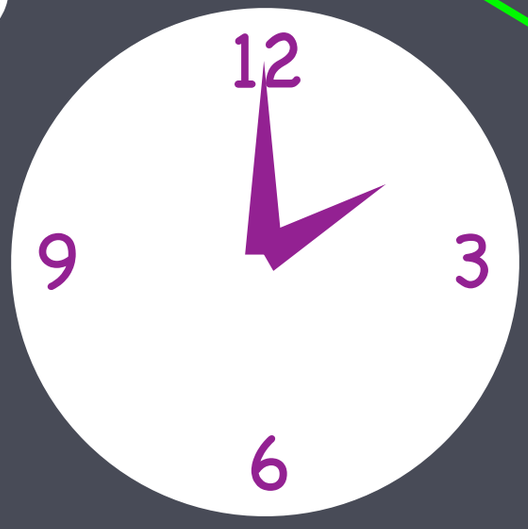
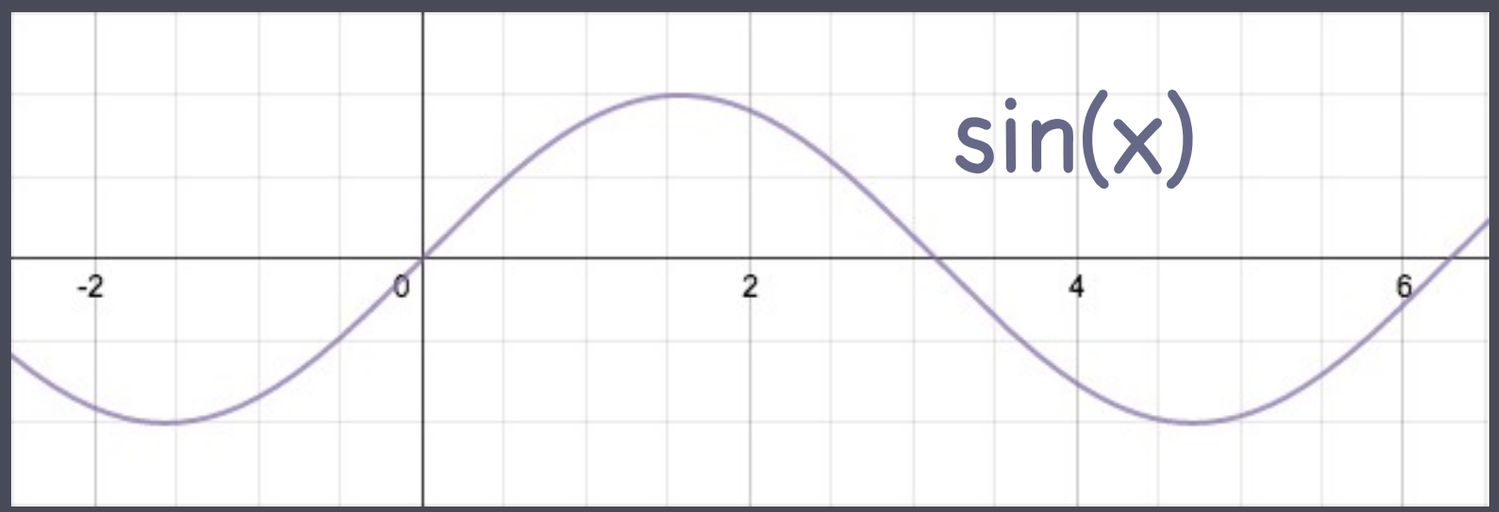




Inverse trig

- $f(x) = \sin(x) \dashrightarrow f^{-1}(x) = \arcsin(x)$



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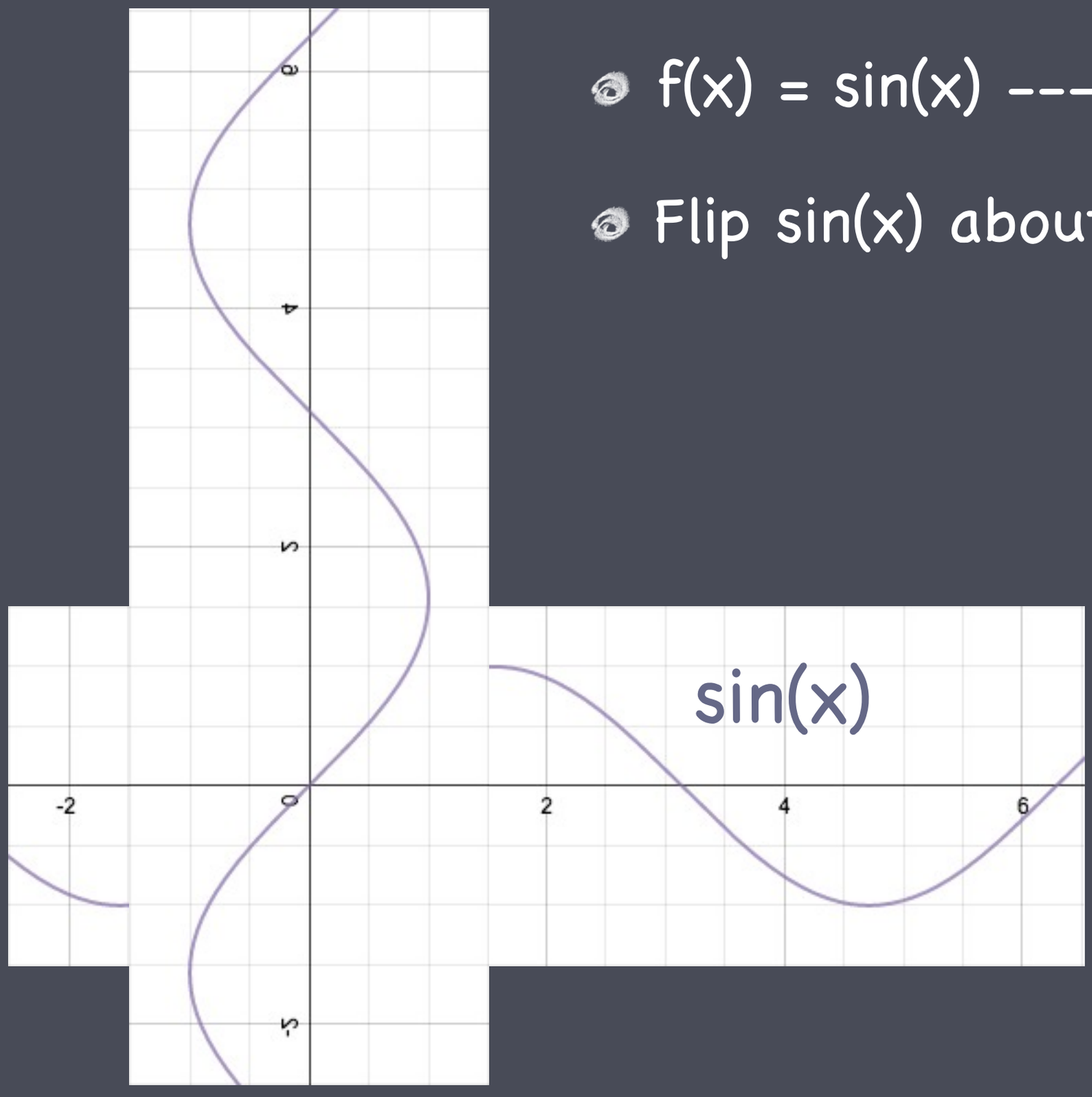
- Flip sin(x) about y=x.



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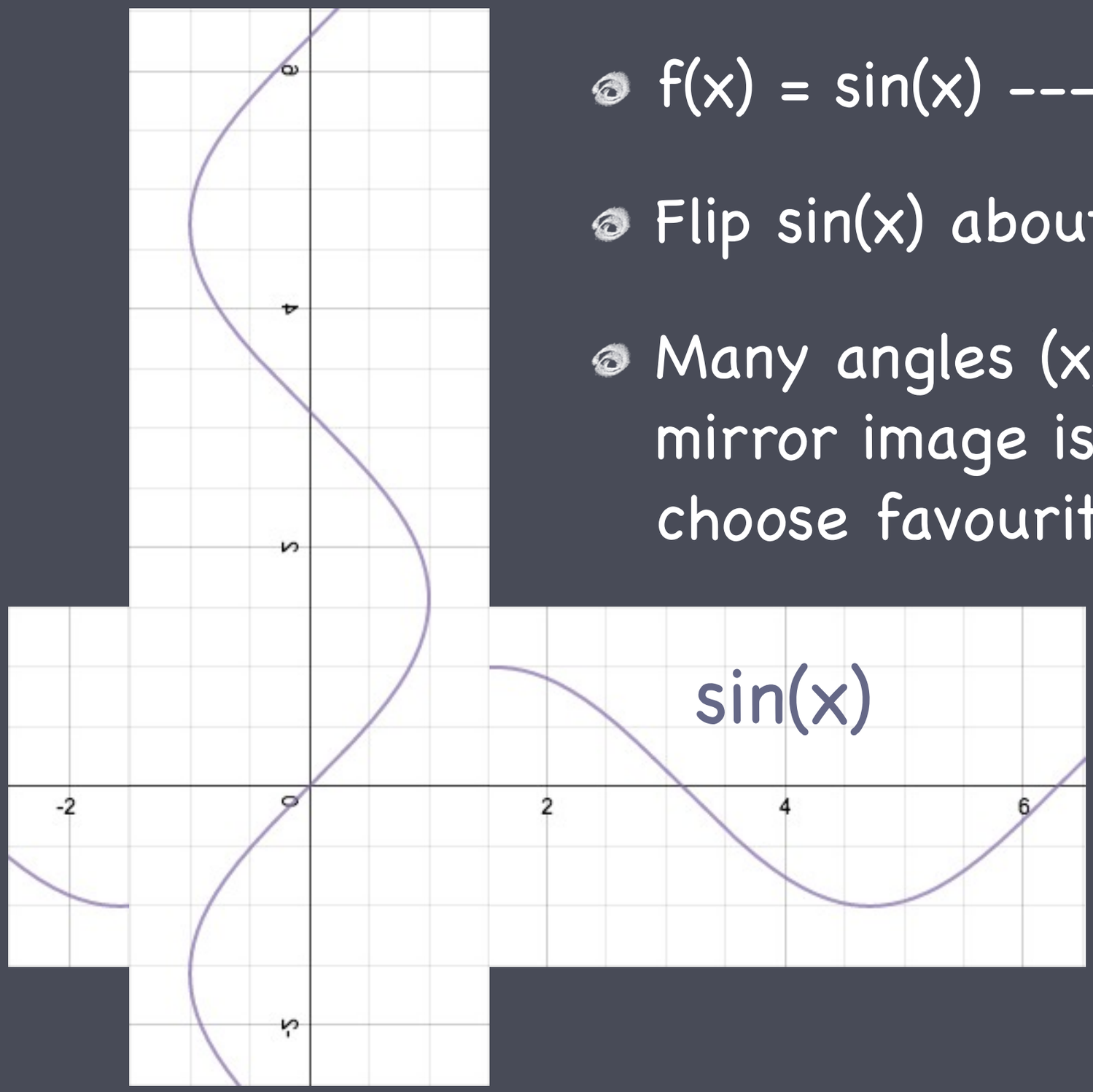

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- Many angles (x) have the same sin(x) so mirror image is not a function - must choose favourite values for arcsin.

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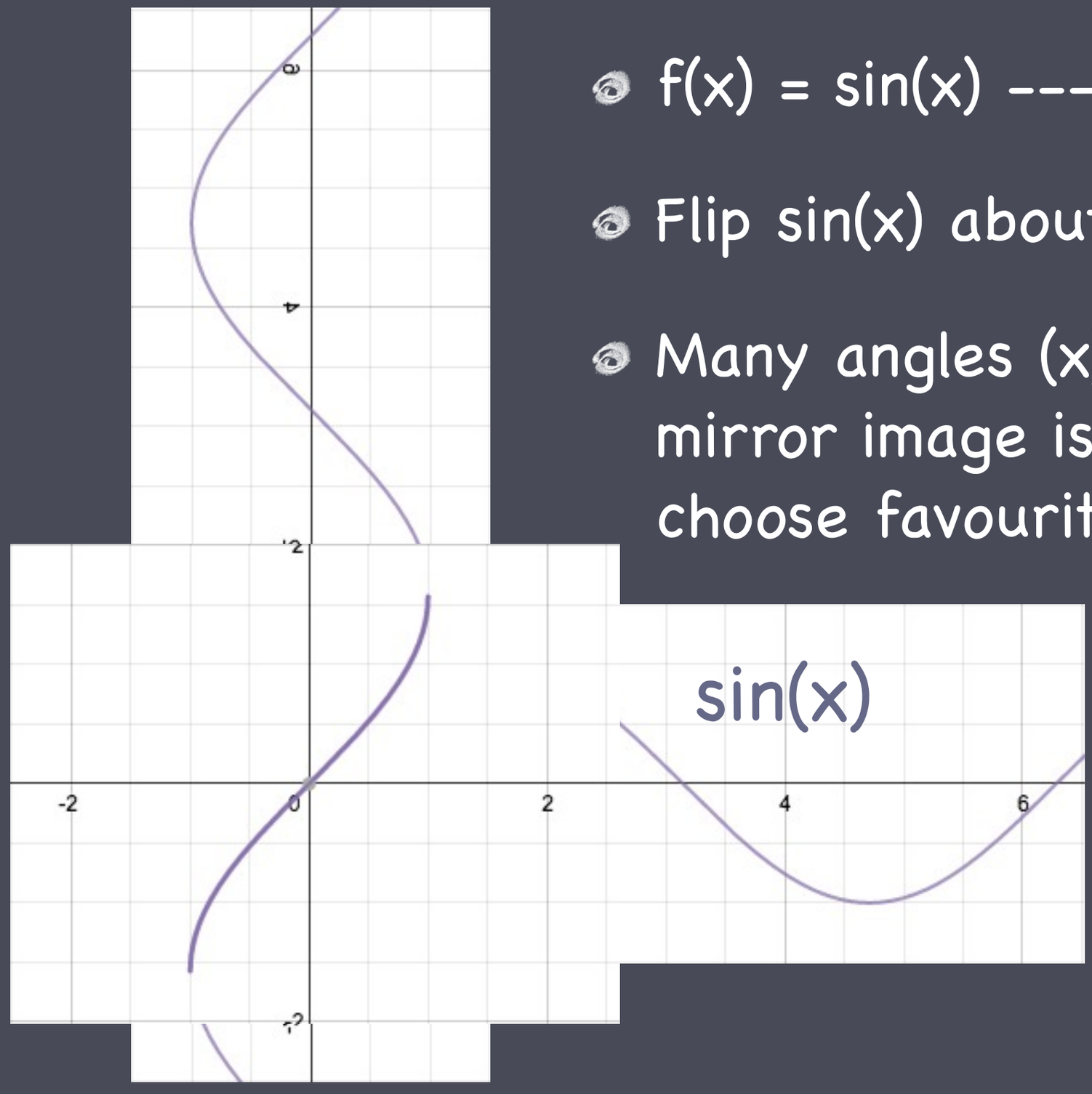

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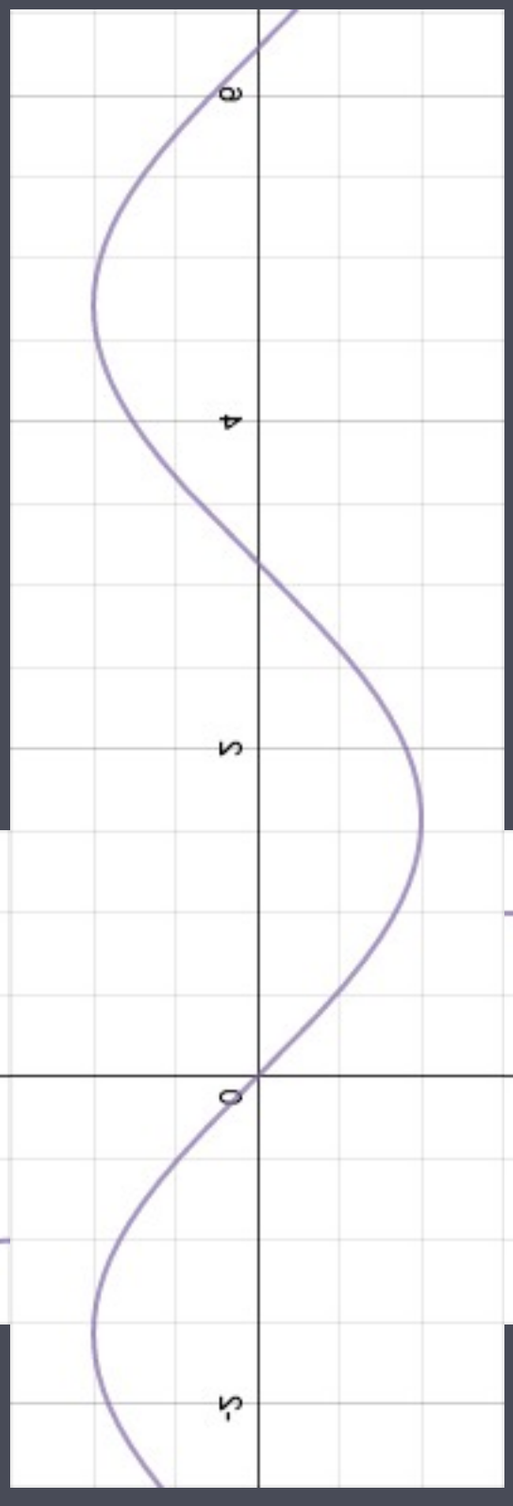

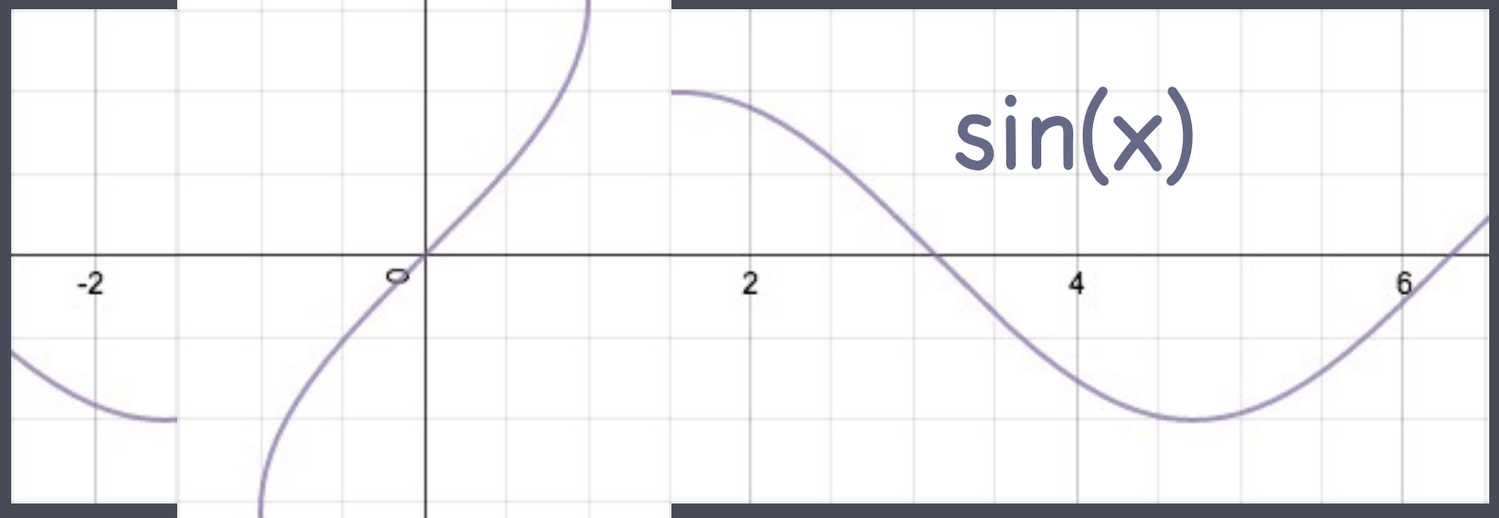

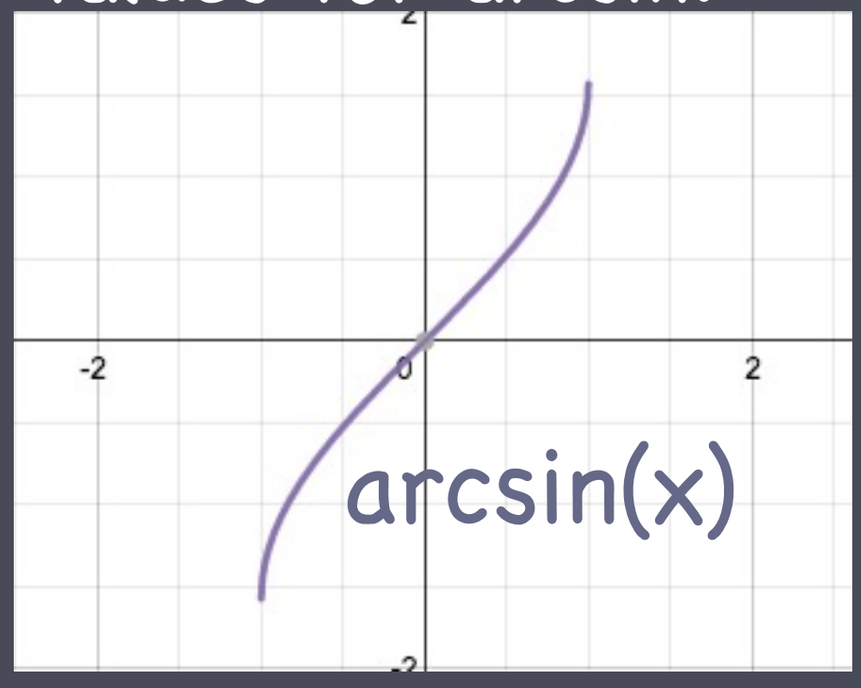

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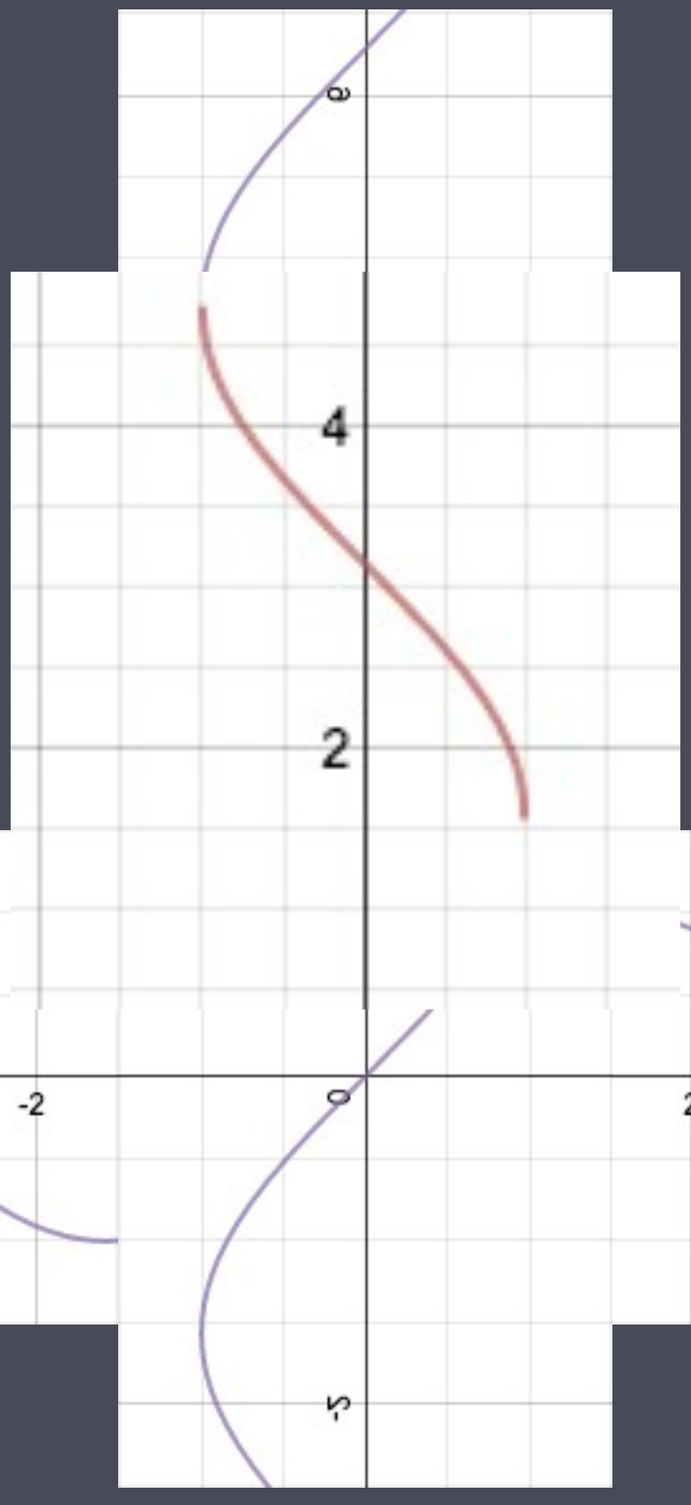

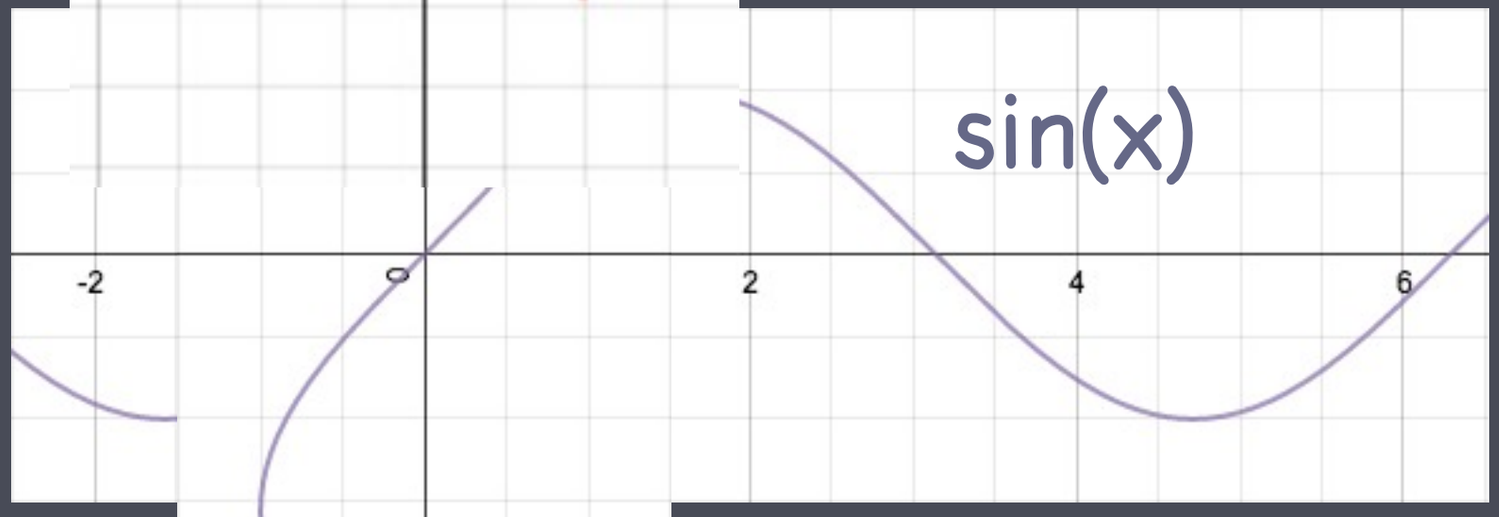

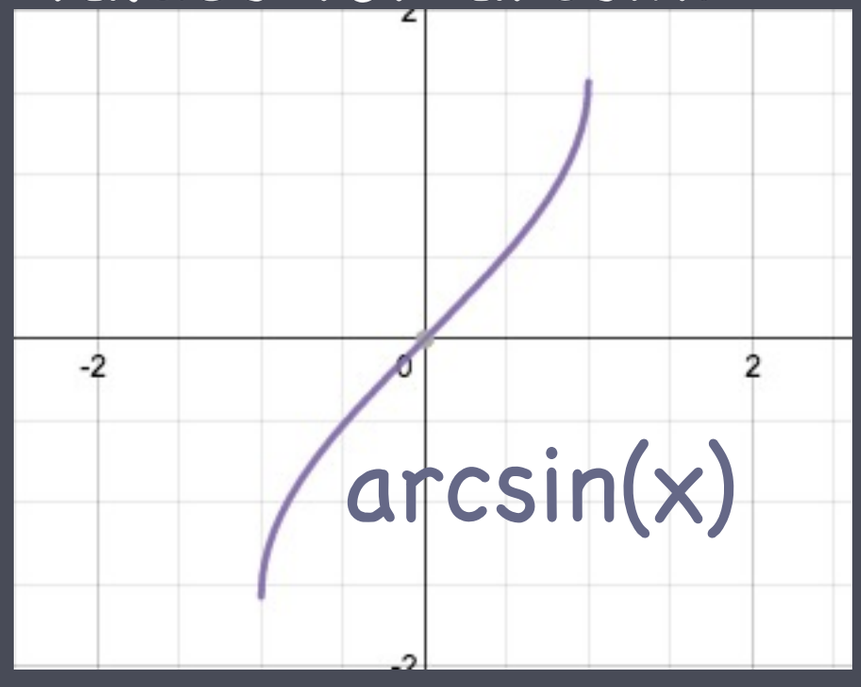

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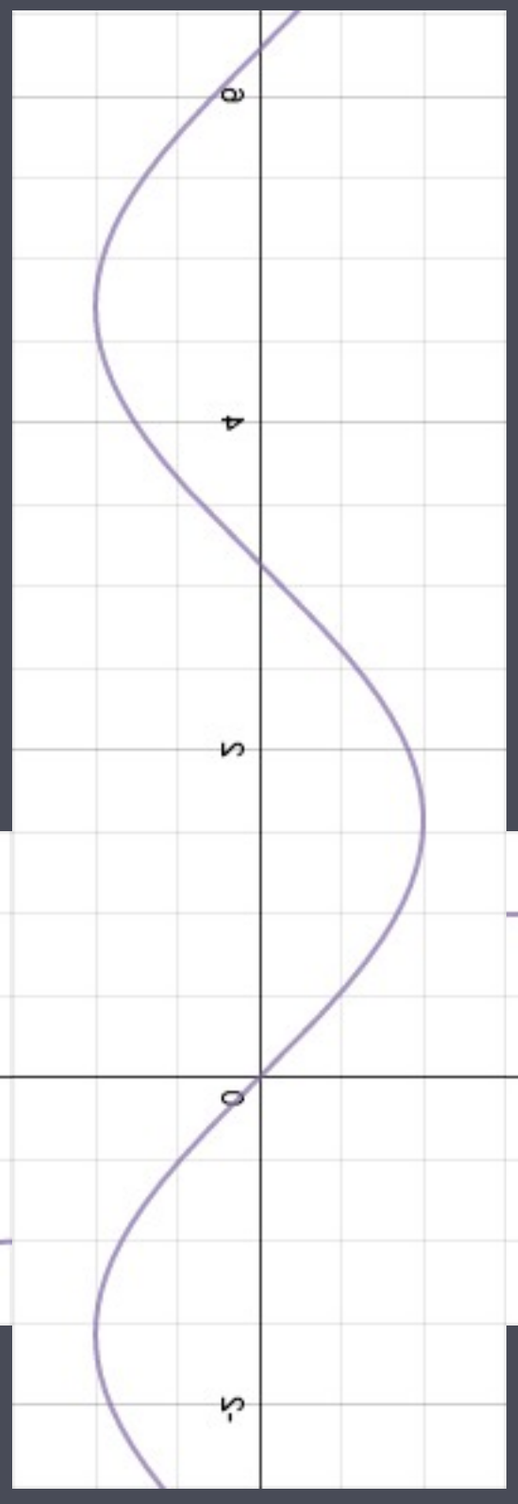

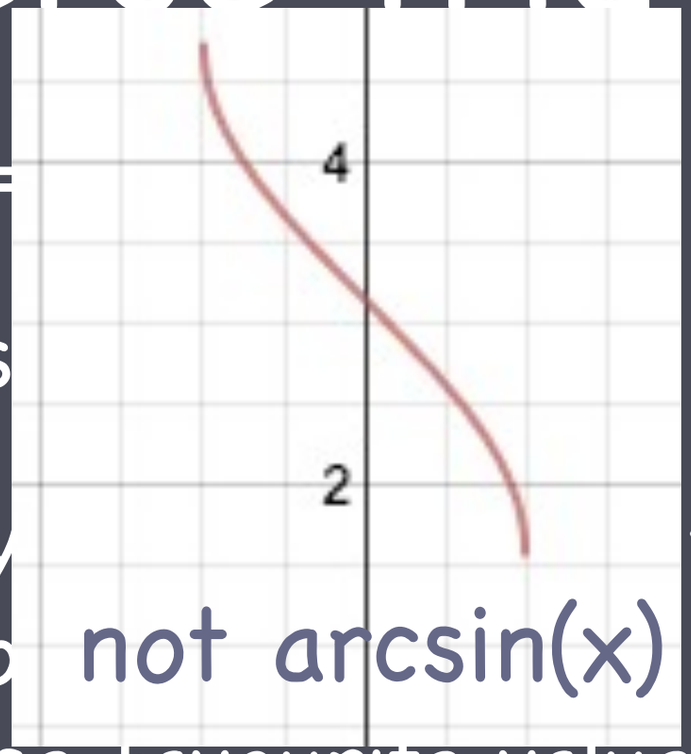

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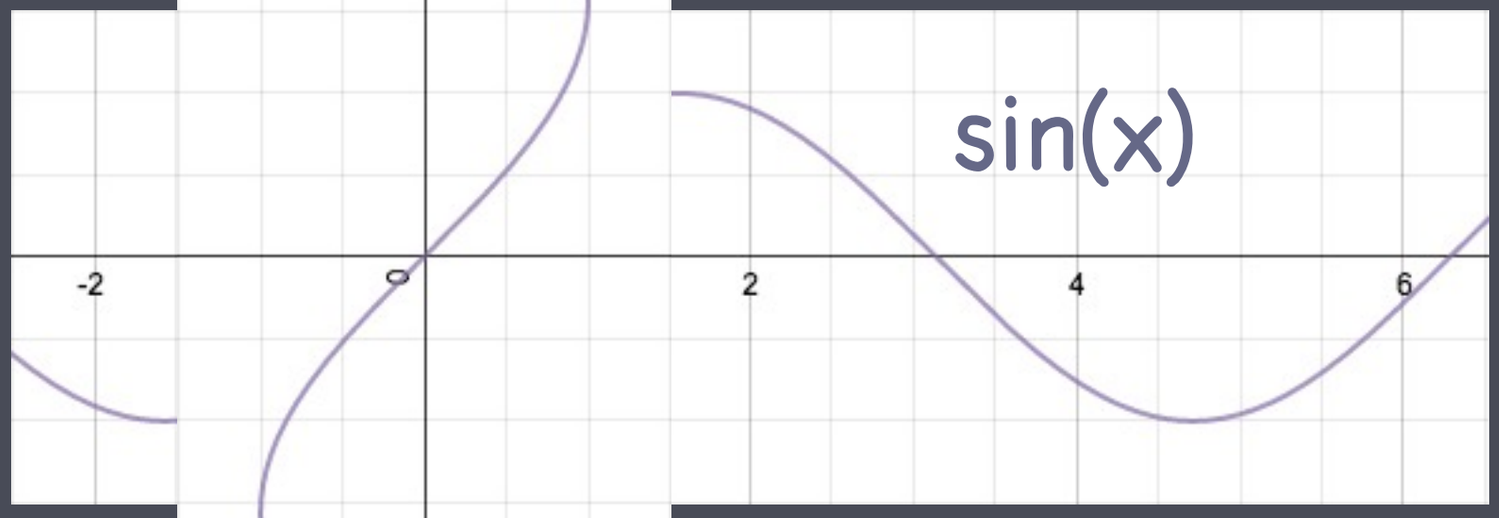

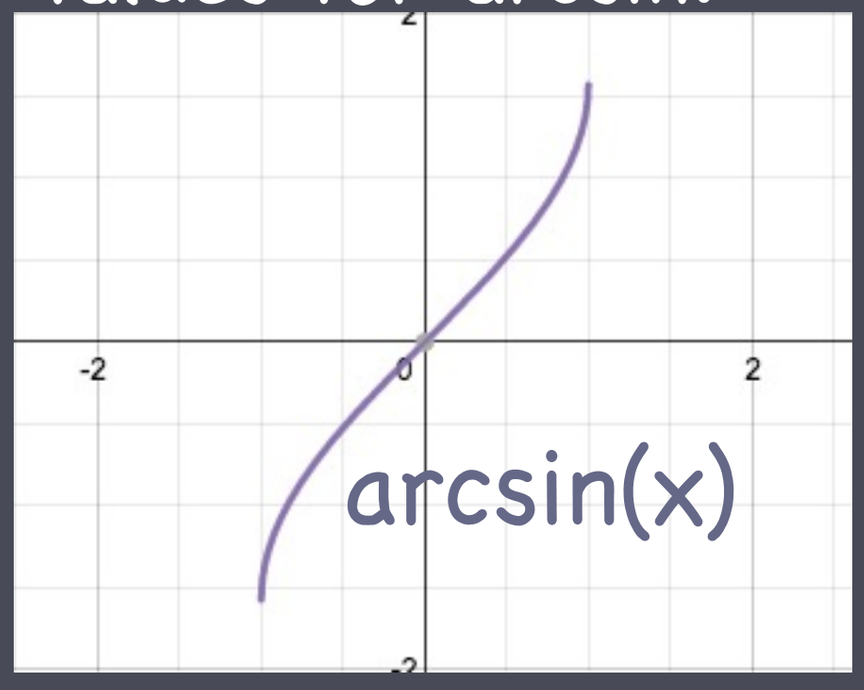

The domain of arcsin is...

(A) $(-\pi/2, \pi/2)$

(B) $[-\pi/2, \pi/2]$

(C) $[0, \pi]$

(D) $(-1, 1)$

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The range for arcsin(x) is...

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(C) [-π, π]

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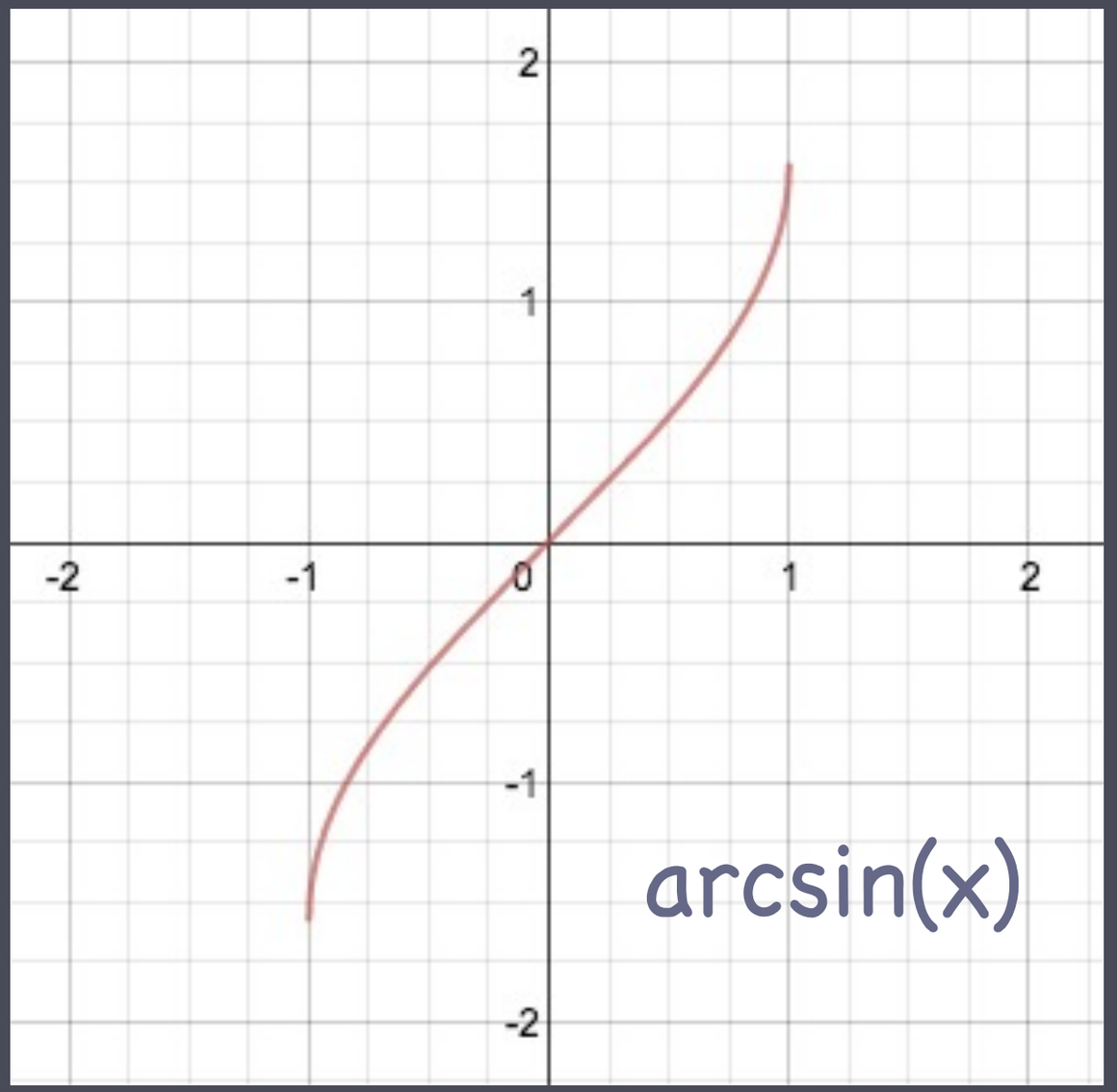

The domain for arccos(x) is...

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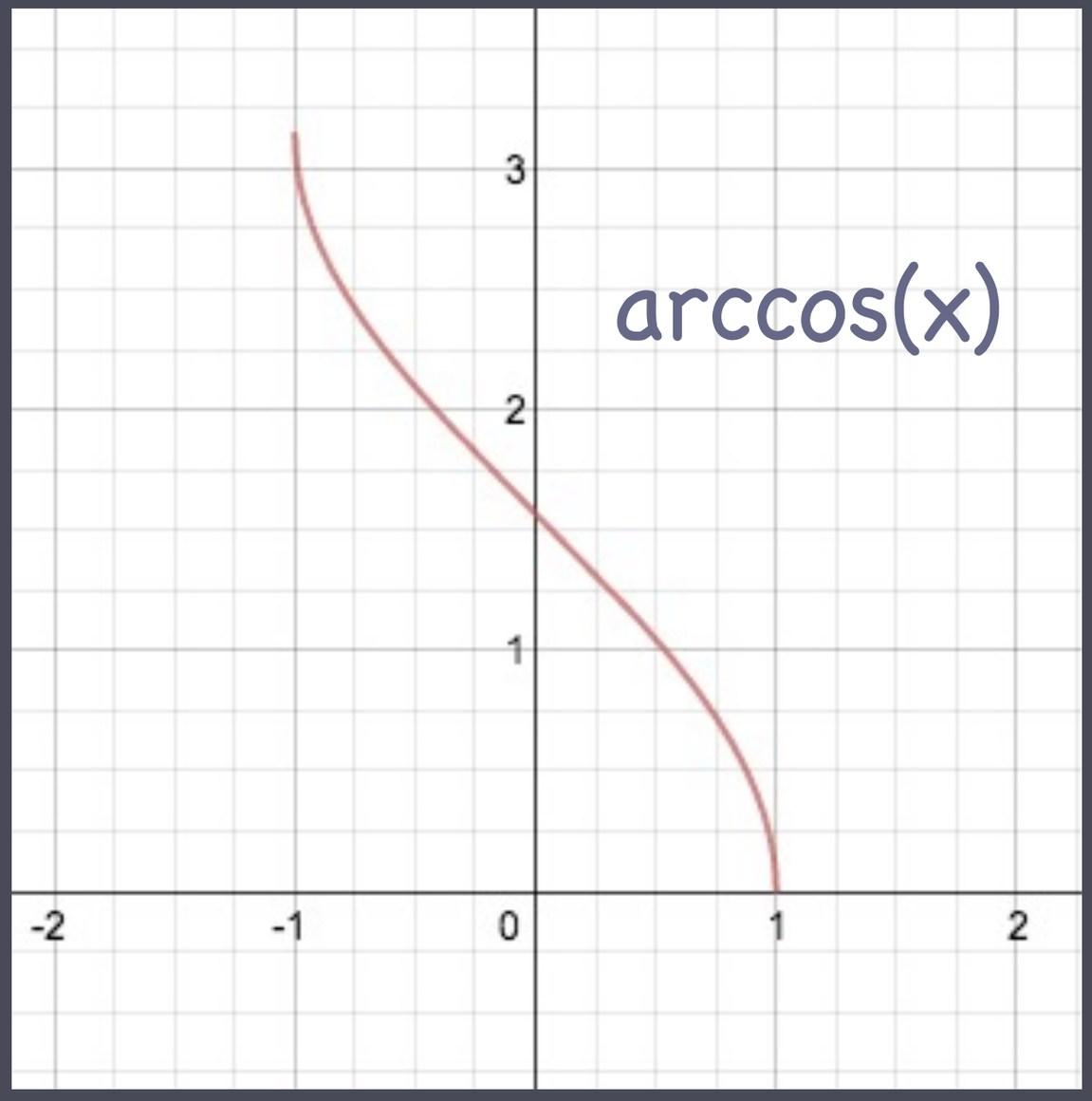

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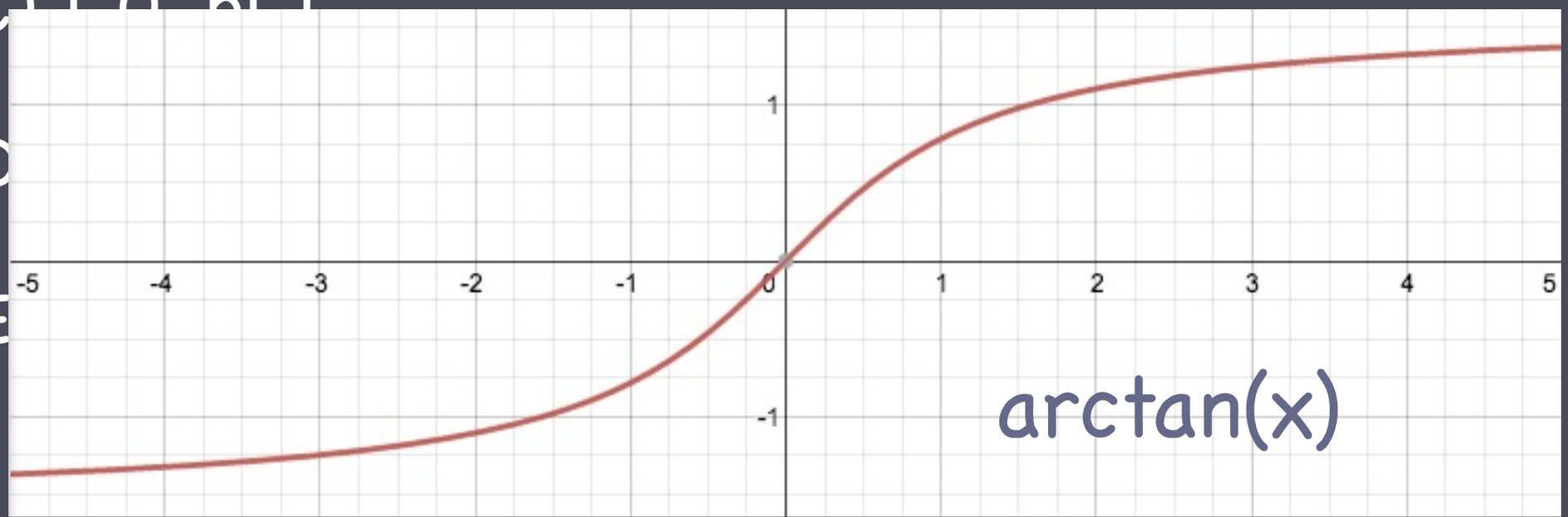

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$\cos(\arcsin(x)) = \ldots$

(A) $\sqrt{1-x^2}$

(B) $1/\sqrt{1-x^2}$

(C) $x/\sqrt{1-x^2}$

(D) $\sqrt{1-x^2}/x$

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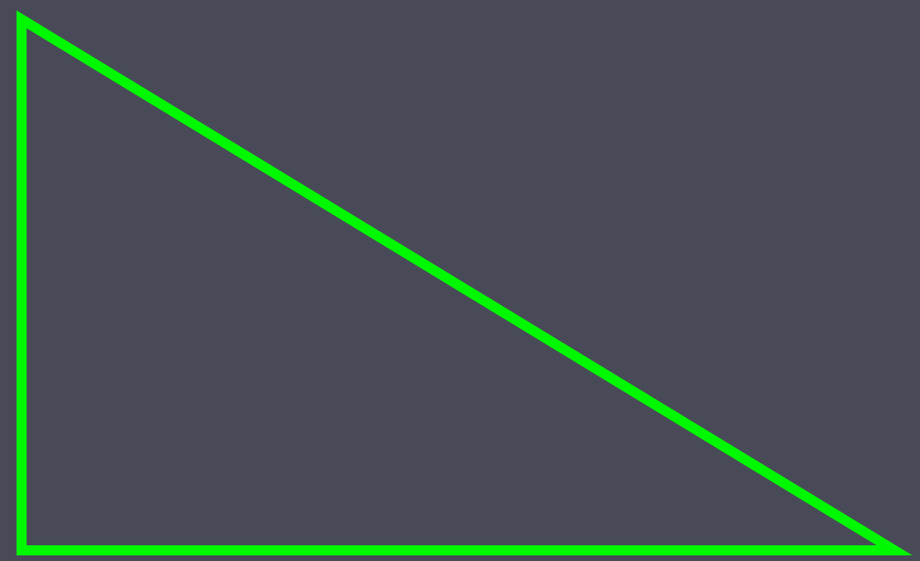

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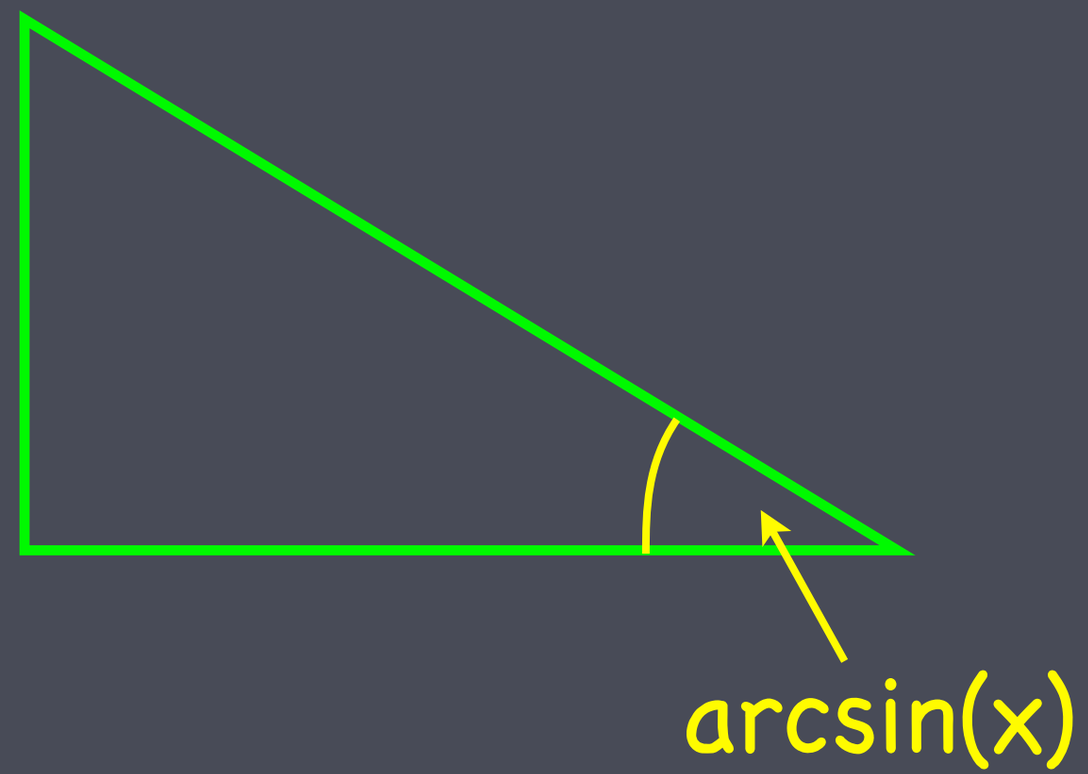

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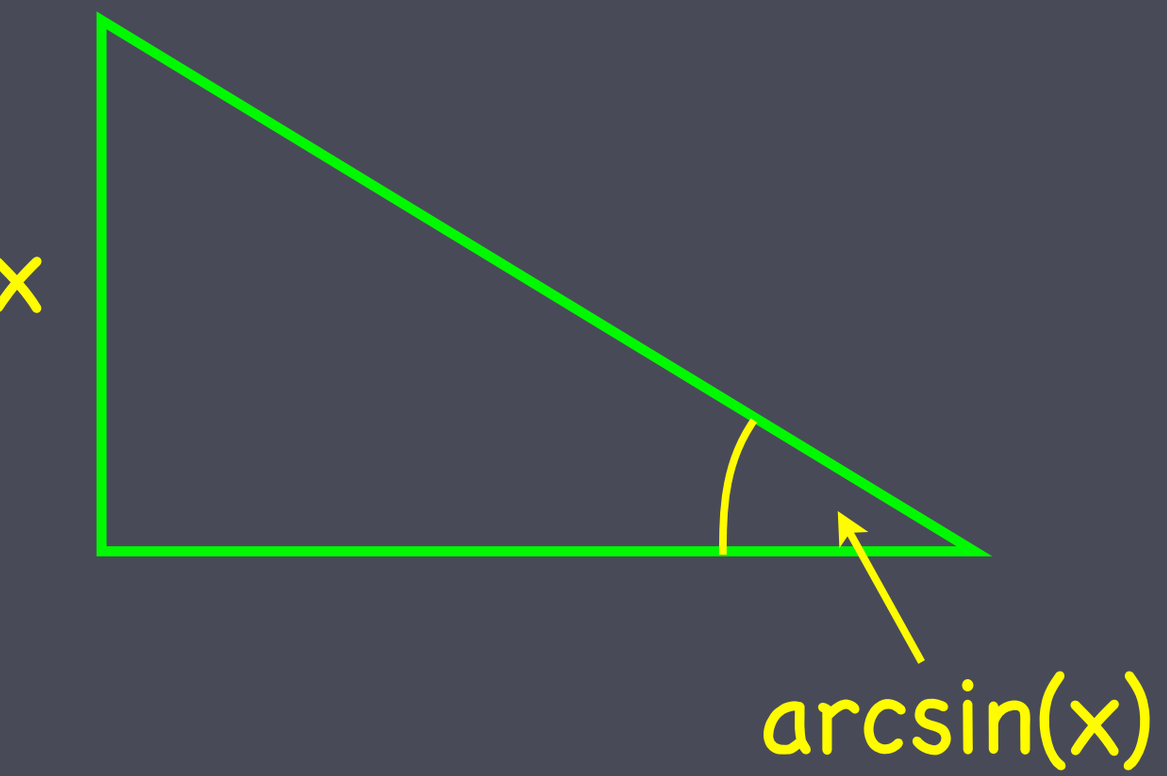

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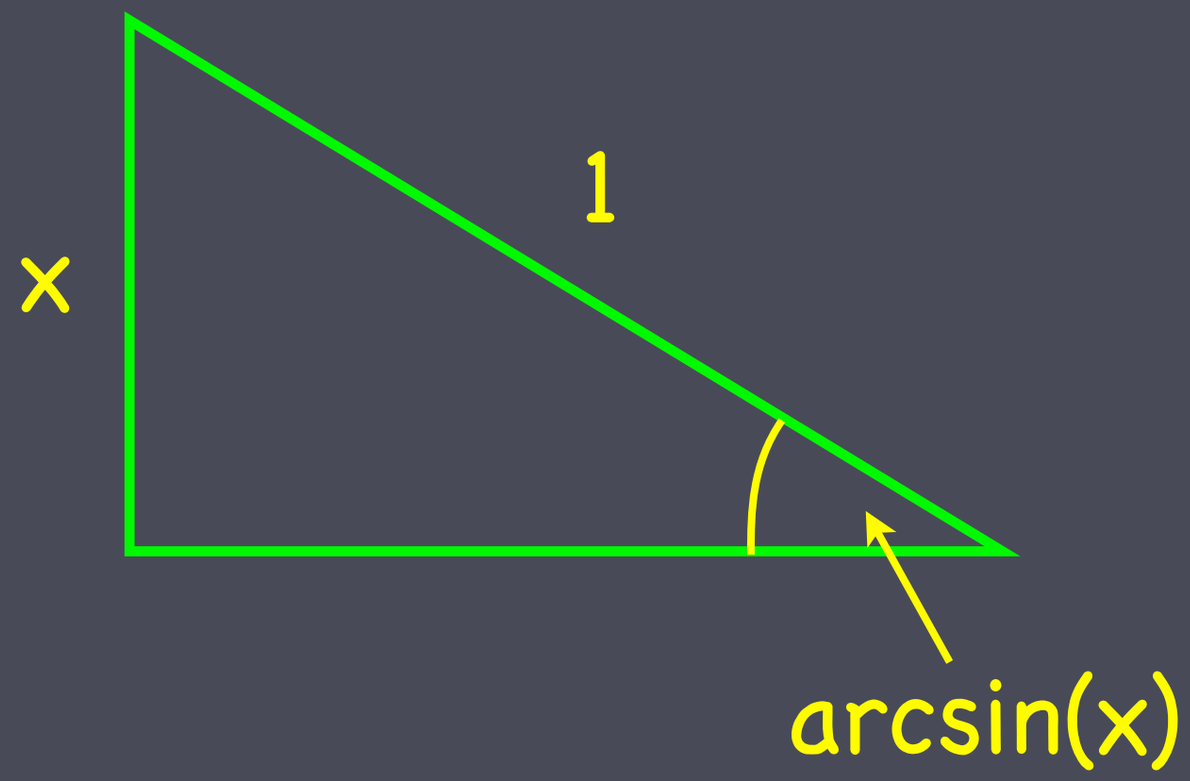

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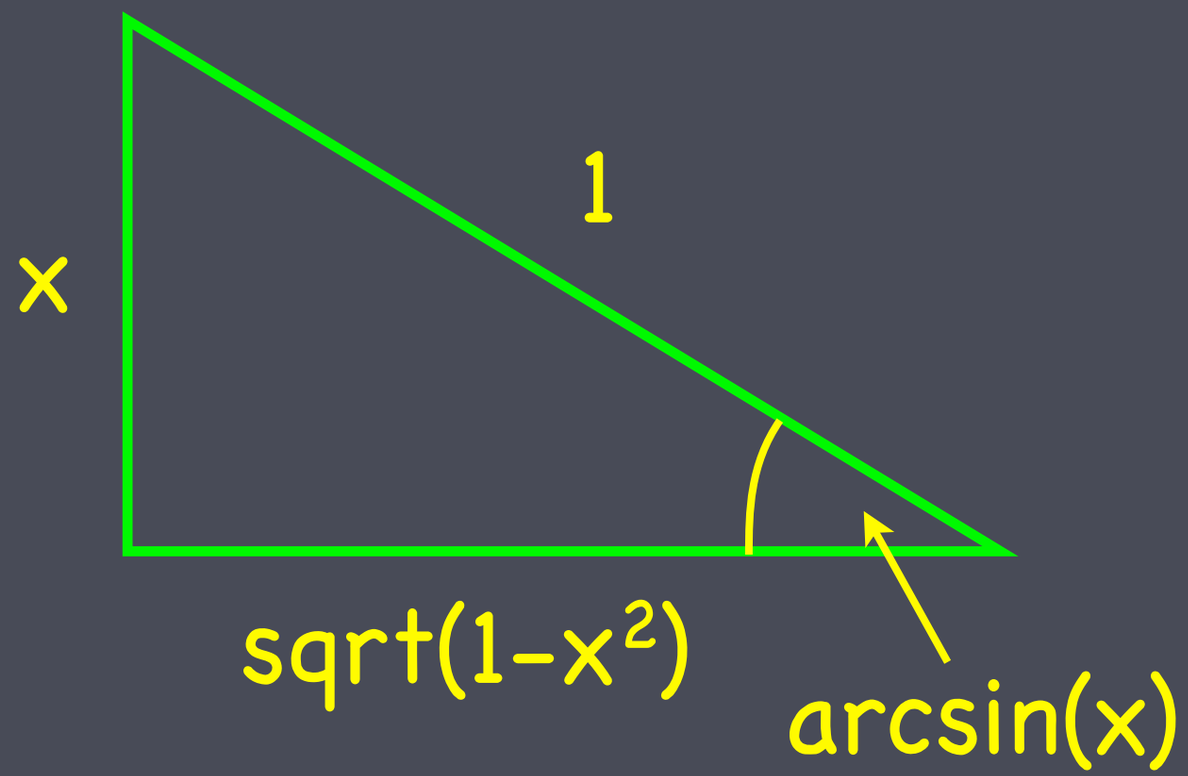

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- $\cos(y)\, y' = 1$ <--- take implicit derivative
- $y' = 1/\cos(y) = 1/\cos(\arcsin(x))$ <--- solve for y'
- $y' = 1/\sqrt{1-x^2}$

What is the derivative of y=arccos(x)?

(A) sqrt(1-x^2)

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