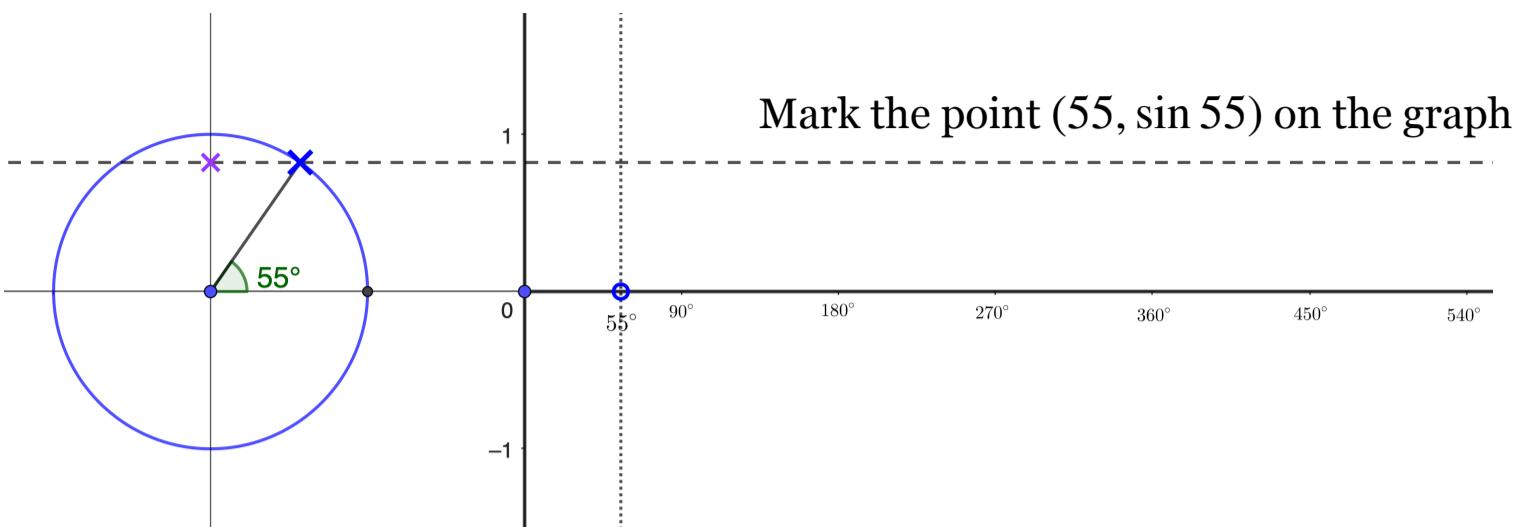


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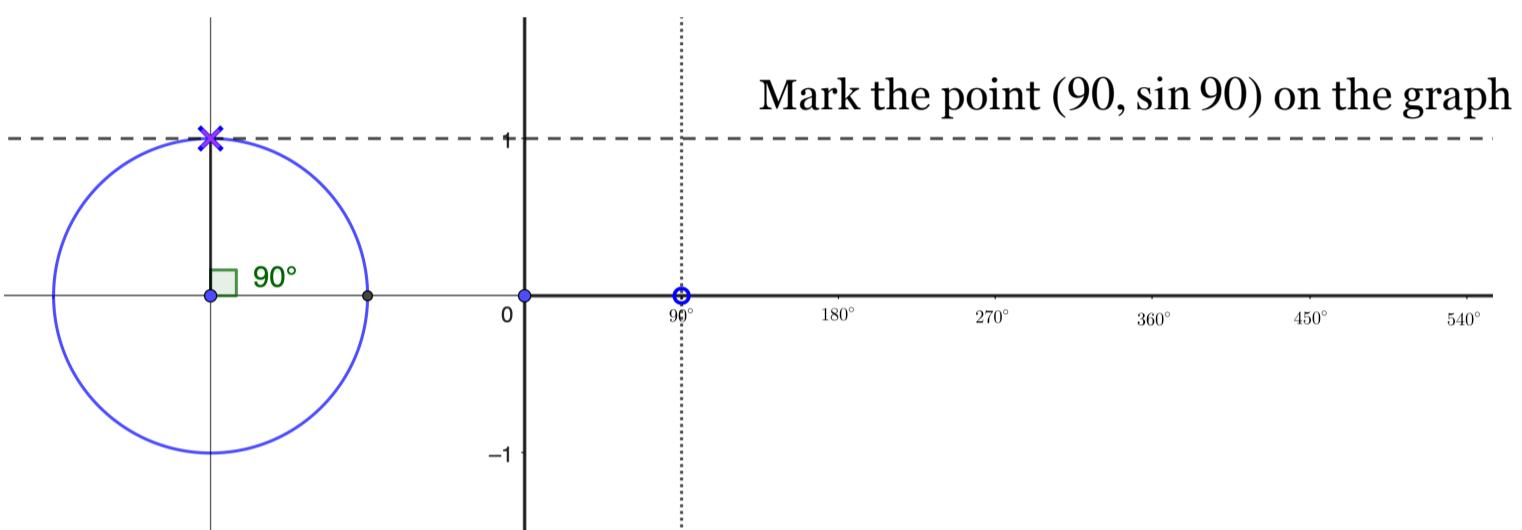
Circular functions 3

Graphs of circular functions

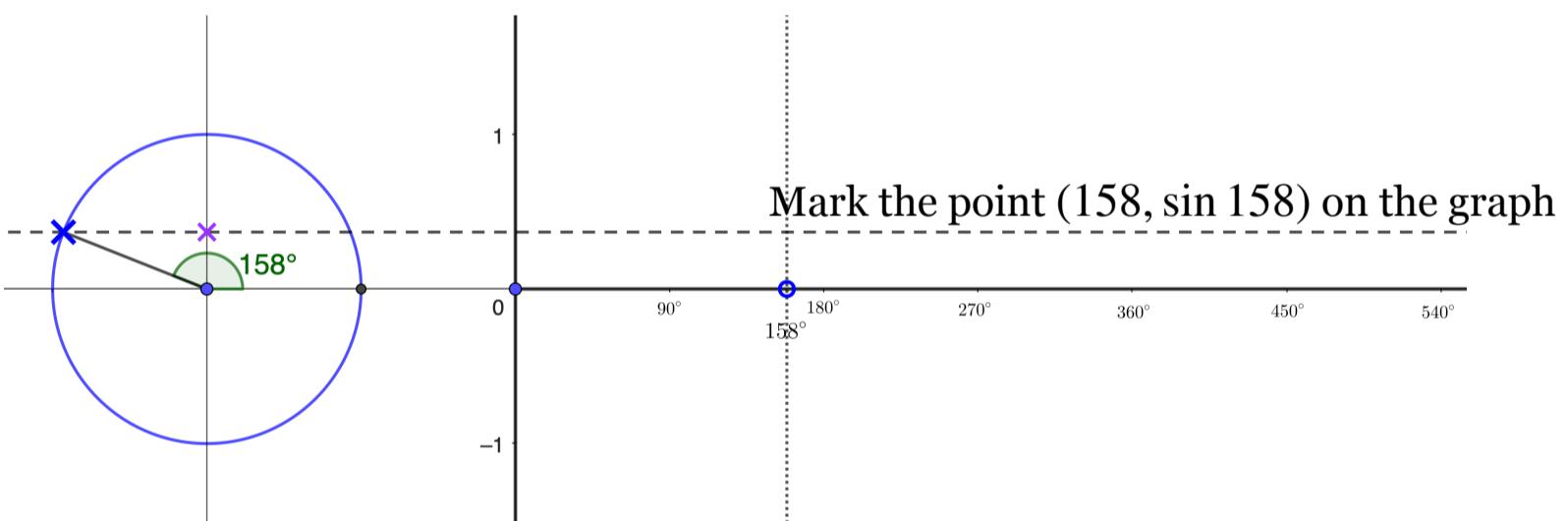
student version



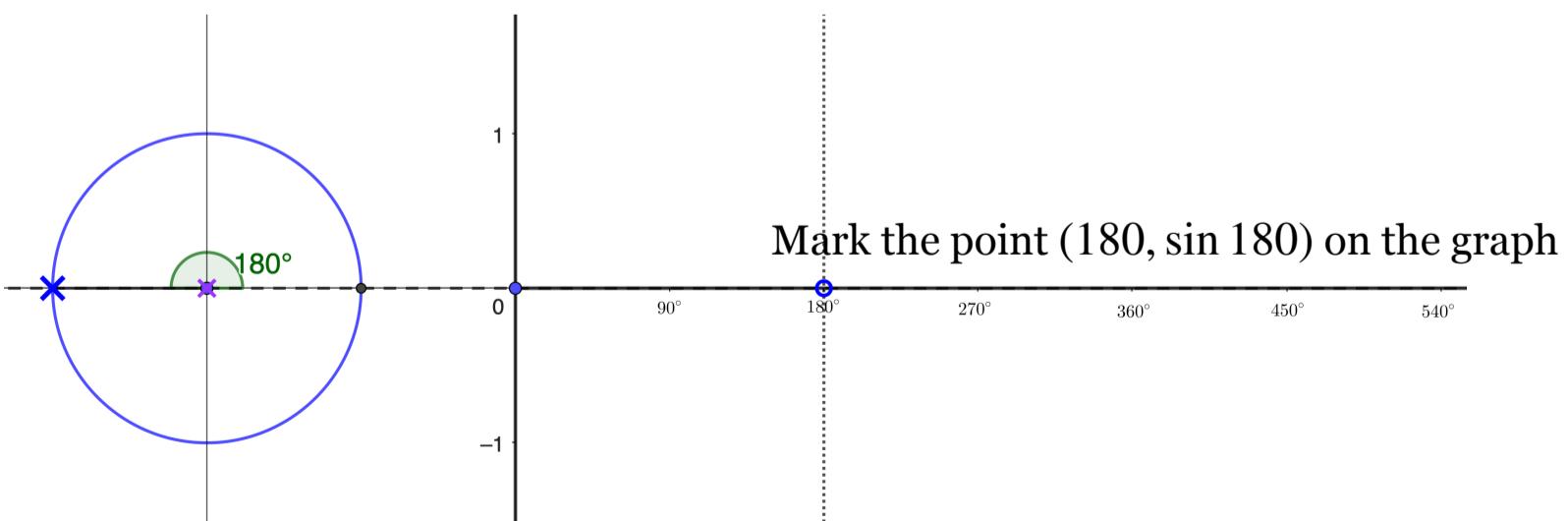
Mark the point $(55, \sin 55)$ on the graph



Mark the point $(90, \sin 90)$ on the graph

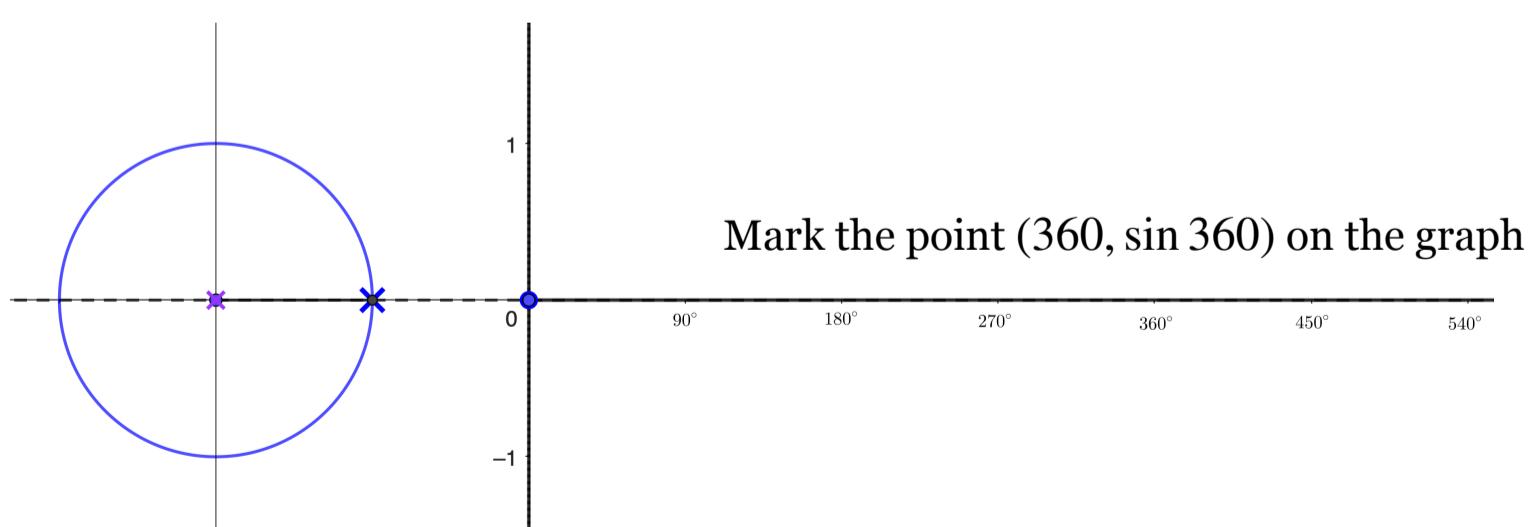
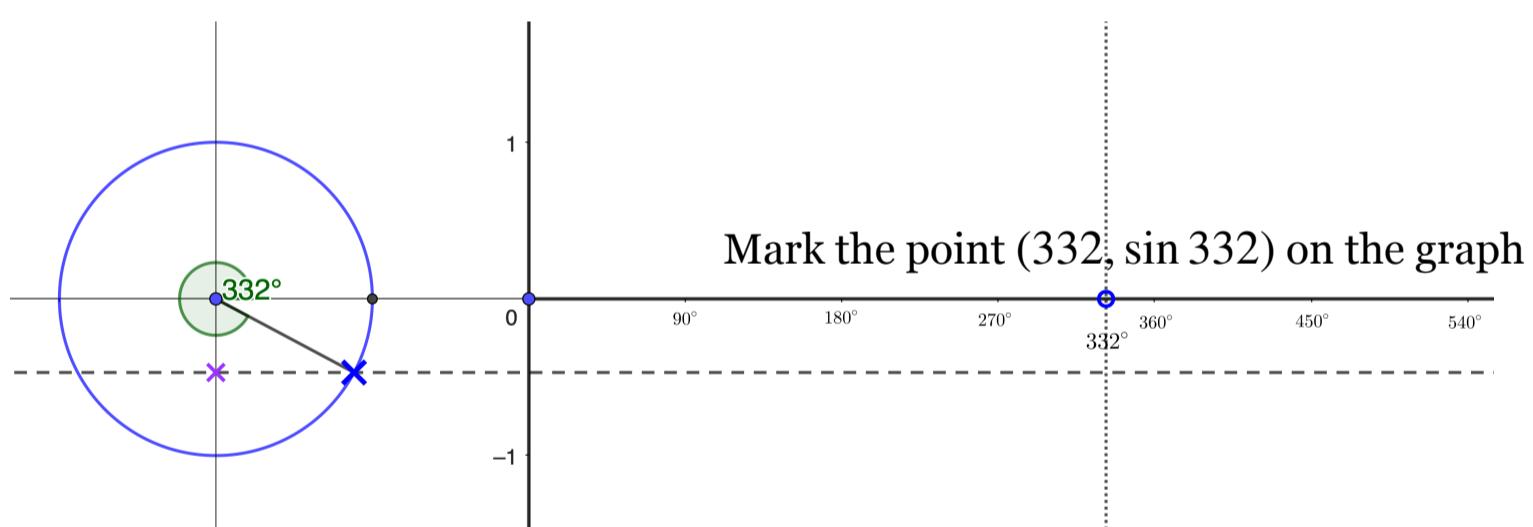
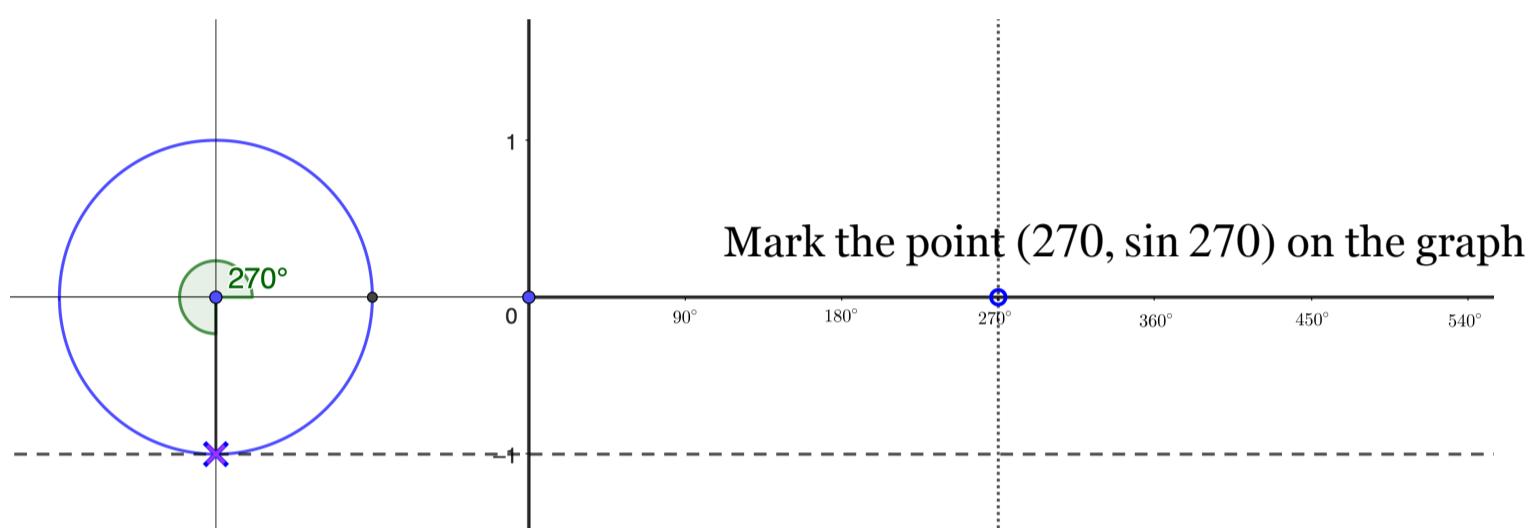
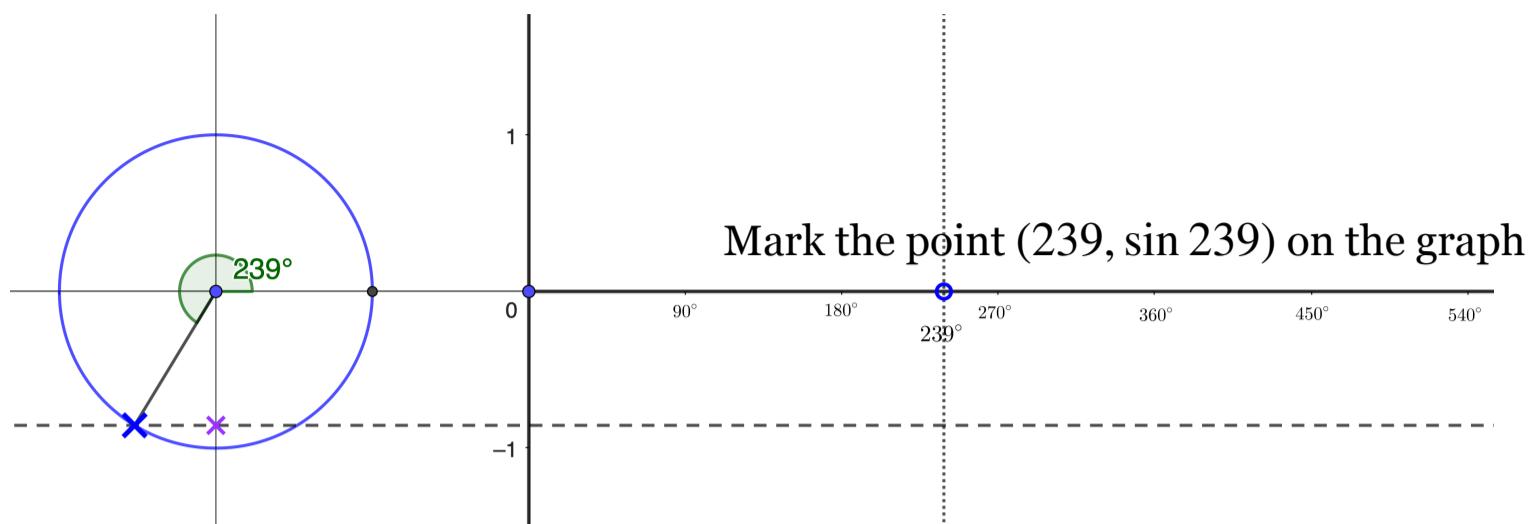


Mark the point $(158, \sin 158)$ on the graph

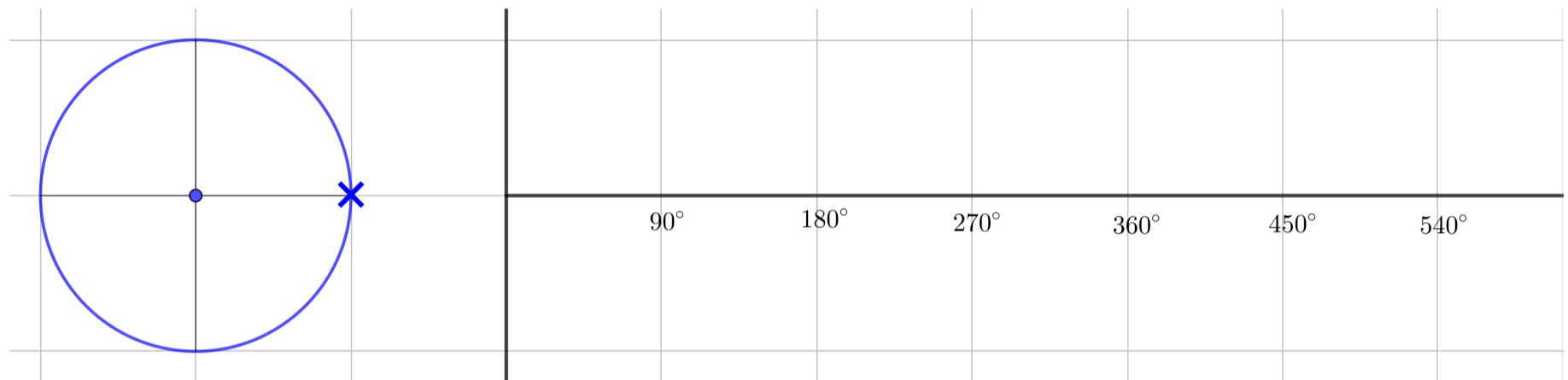


Mark the point $(180, \sin 180)$ on the graph



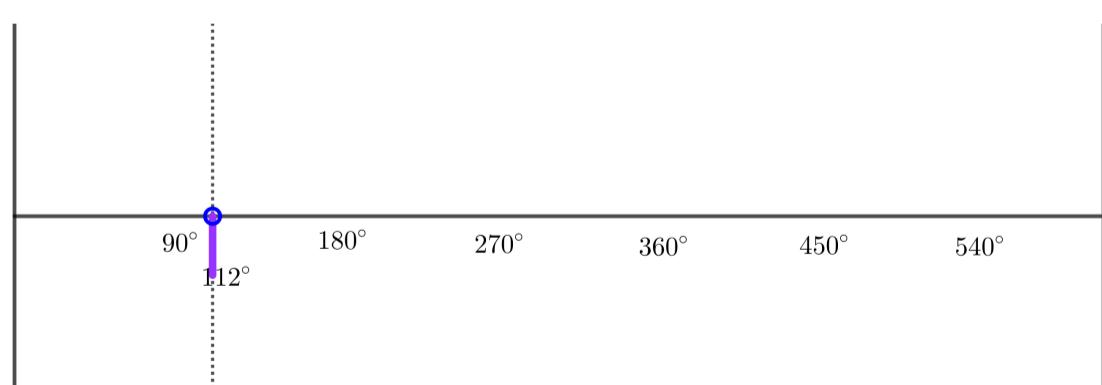
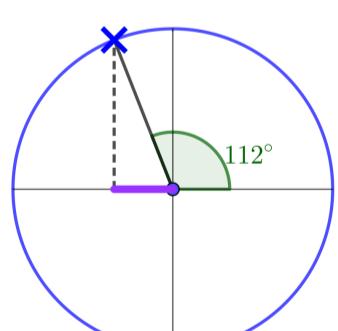
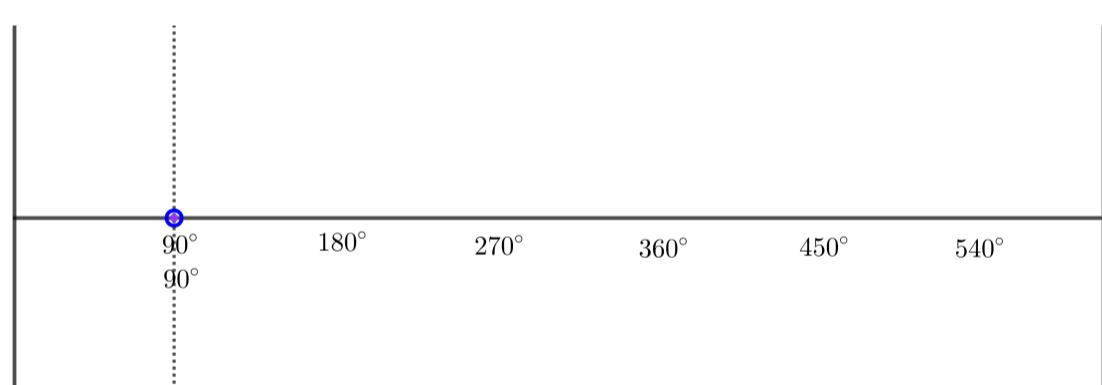
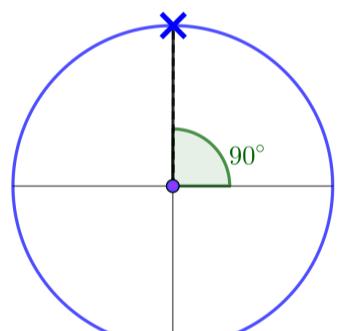
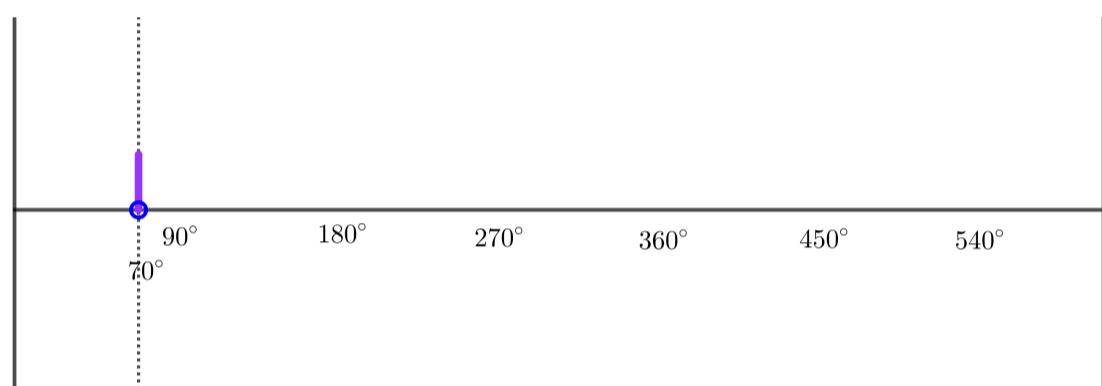
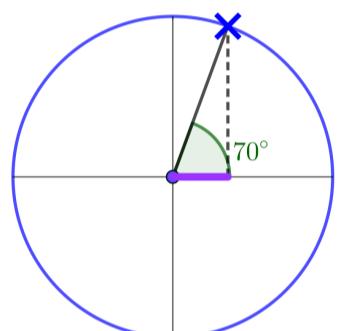
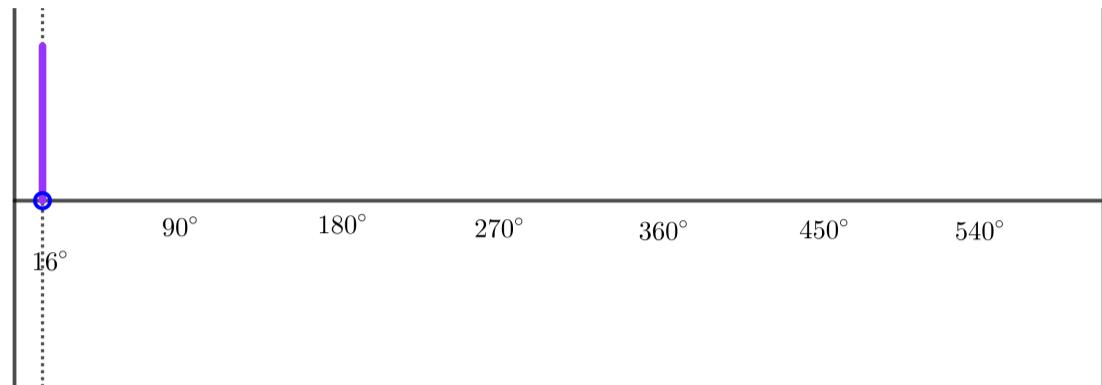
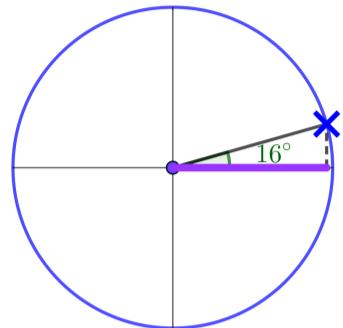


Use these points as a guide to draw the graph $y = \sin x$.



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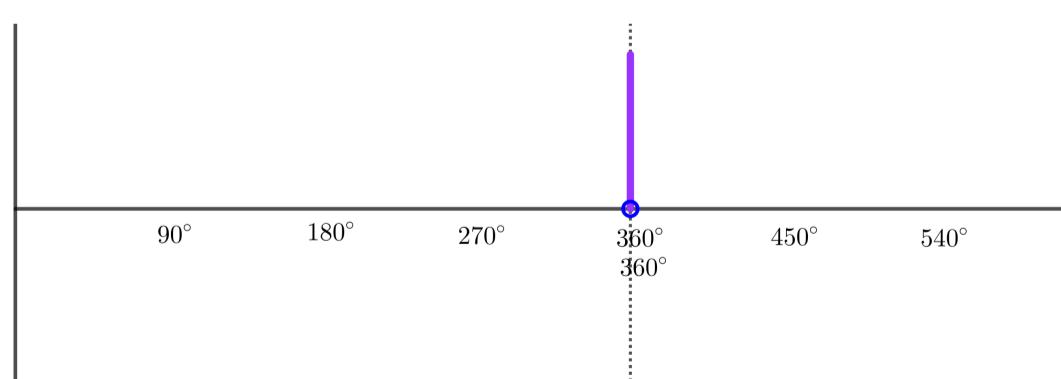
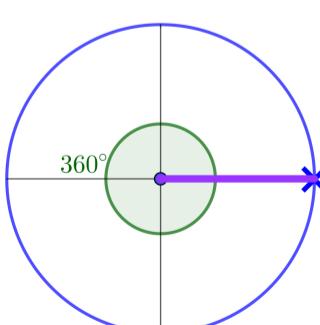
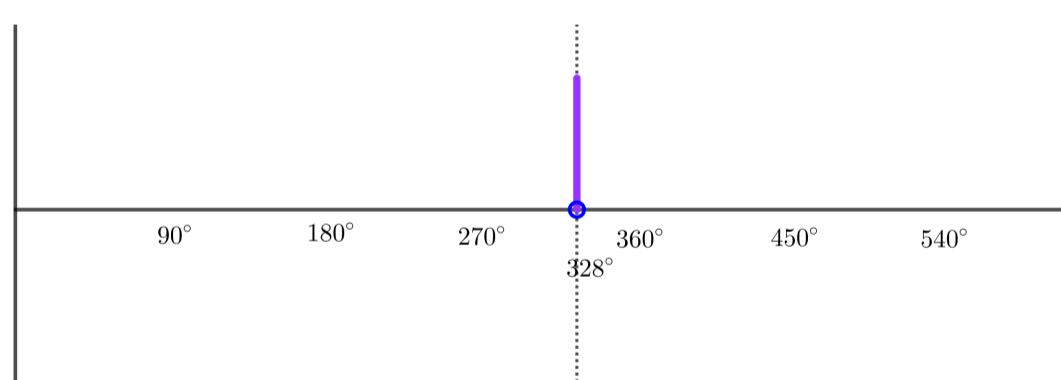
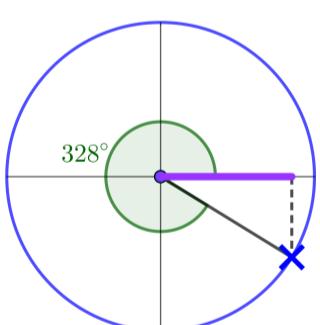
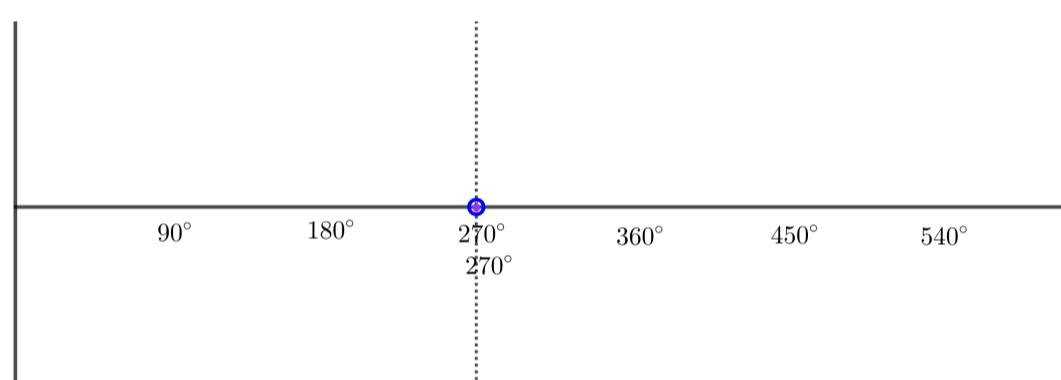
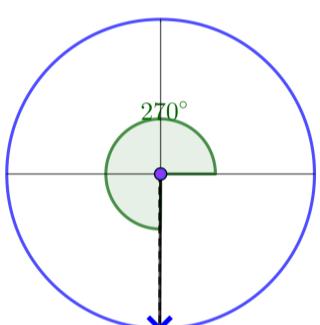
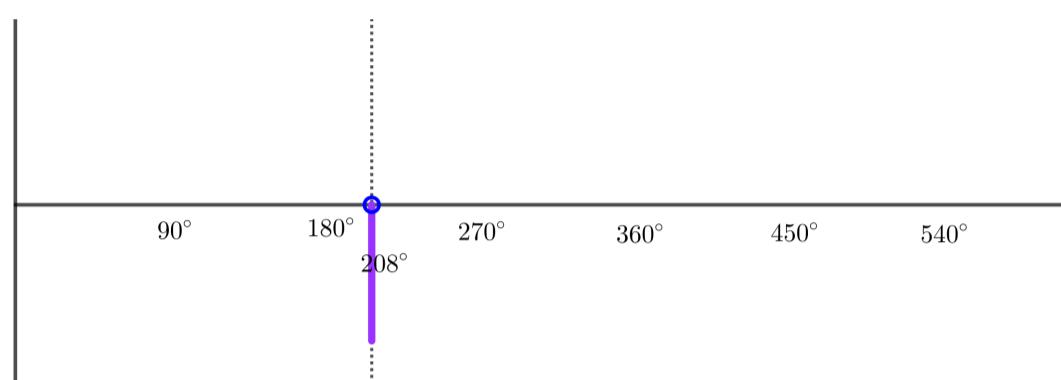
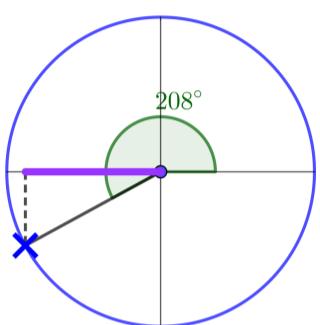
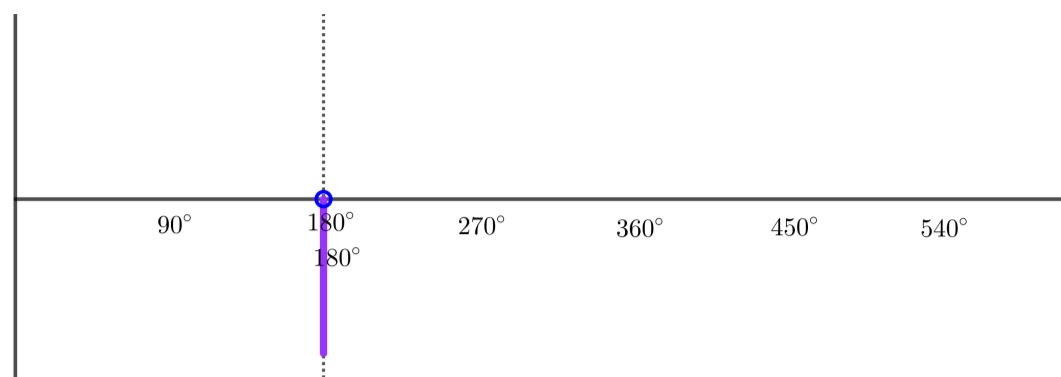
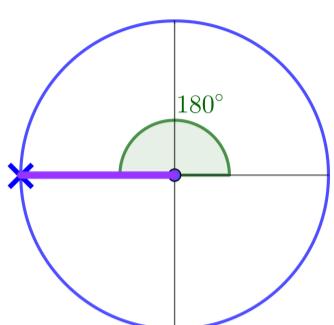
Look at the next sequence of images, and think about the relationship between the purple line segment on the left and the purple line segment on the right.



Demonstrating how the x coordinates on the unit circle become the y coordinates on the graph is a bit trickier. The signed length of the segment on the left is the same as the signed length of that on the right.

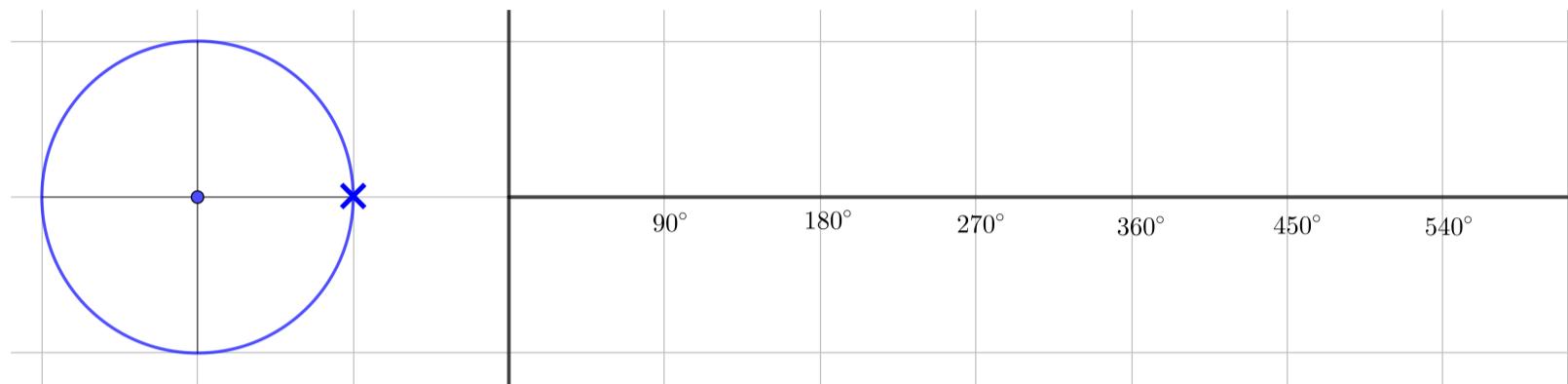


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Use these points as a guide to draw the graph $y = \cos x$.



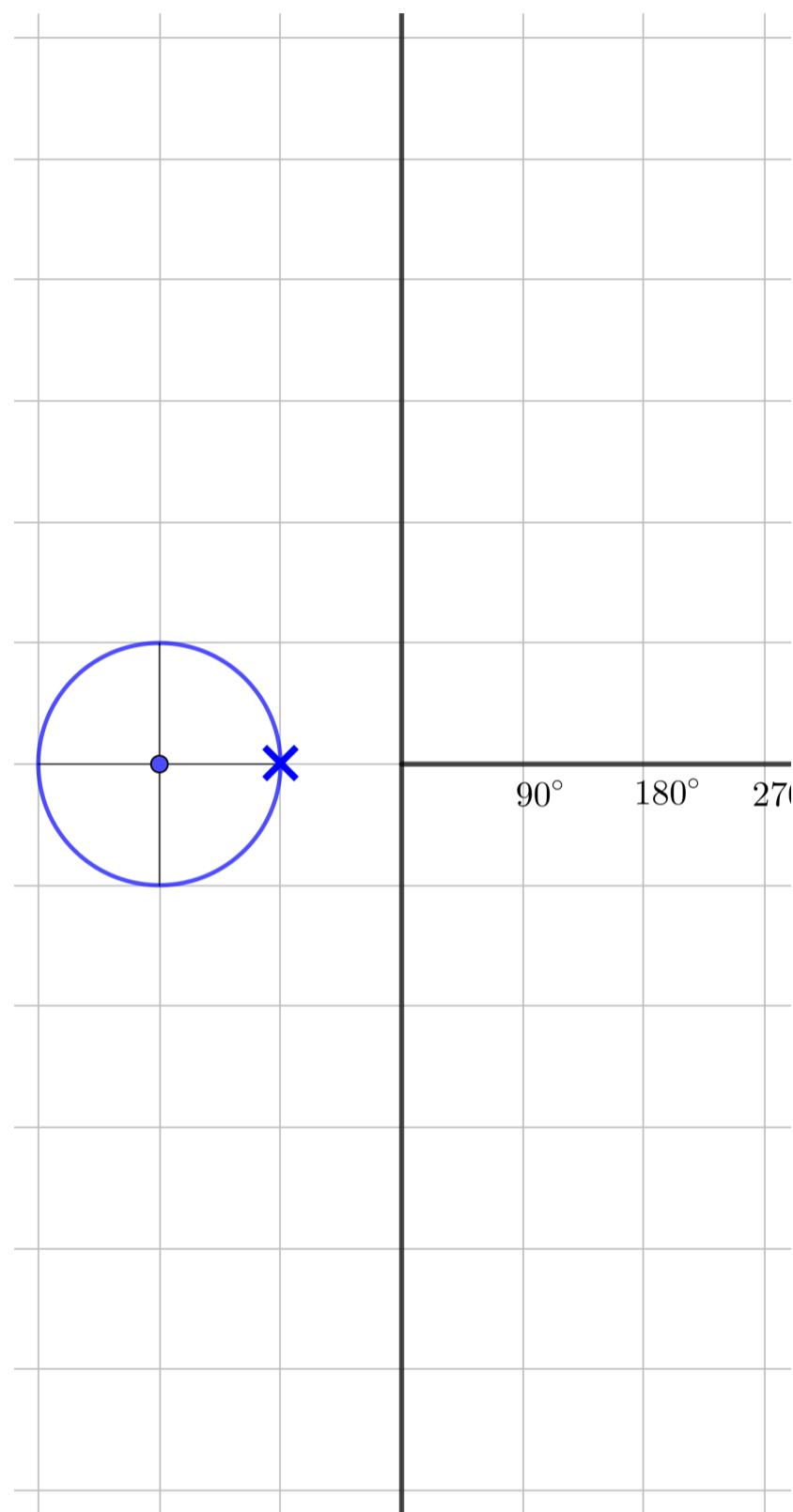
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Look at this sequence of images, and describe the relationship between the purple line segment on the left and the purple line segment on the right.



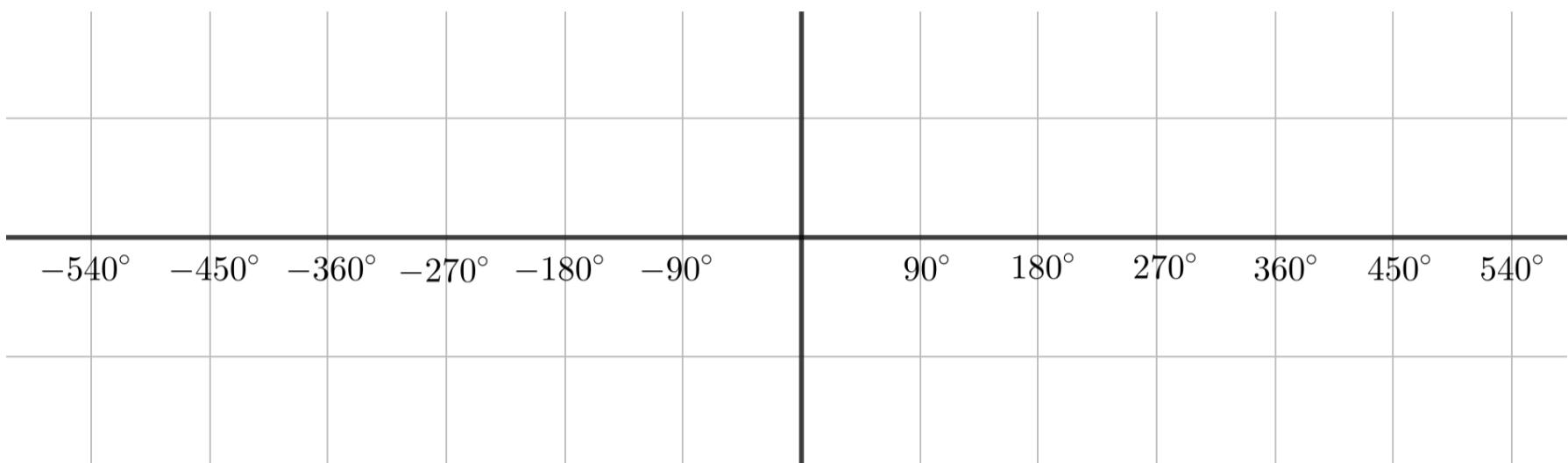
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Use this idea to draw the graph $y = \tan x$.

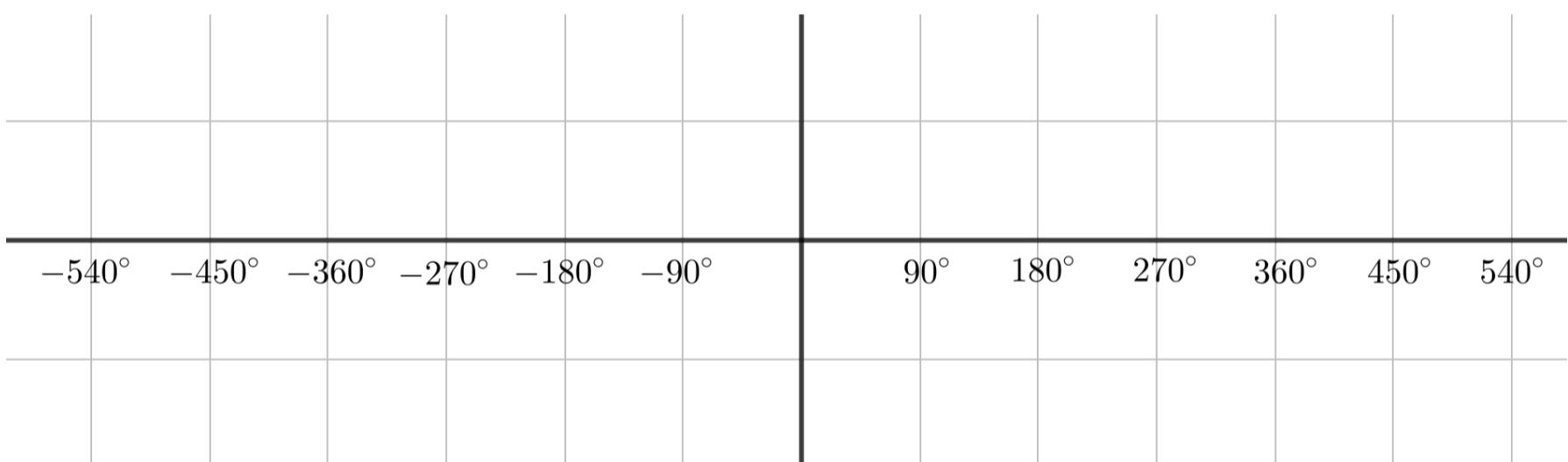


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Draw the graph $y = \sin x$.

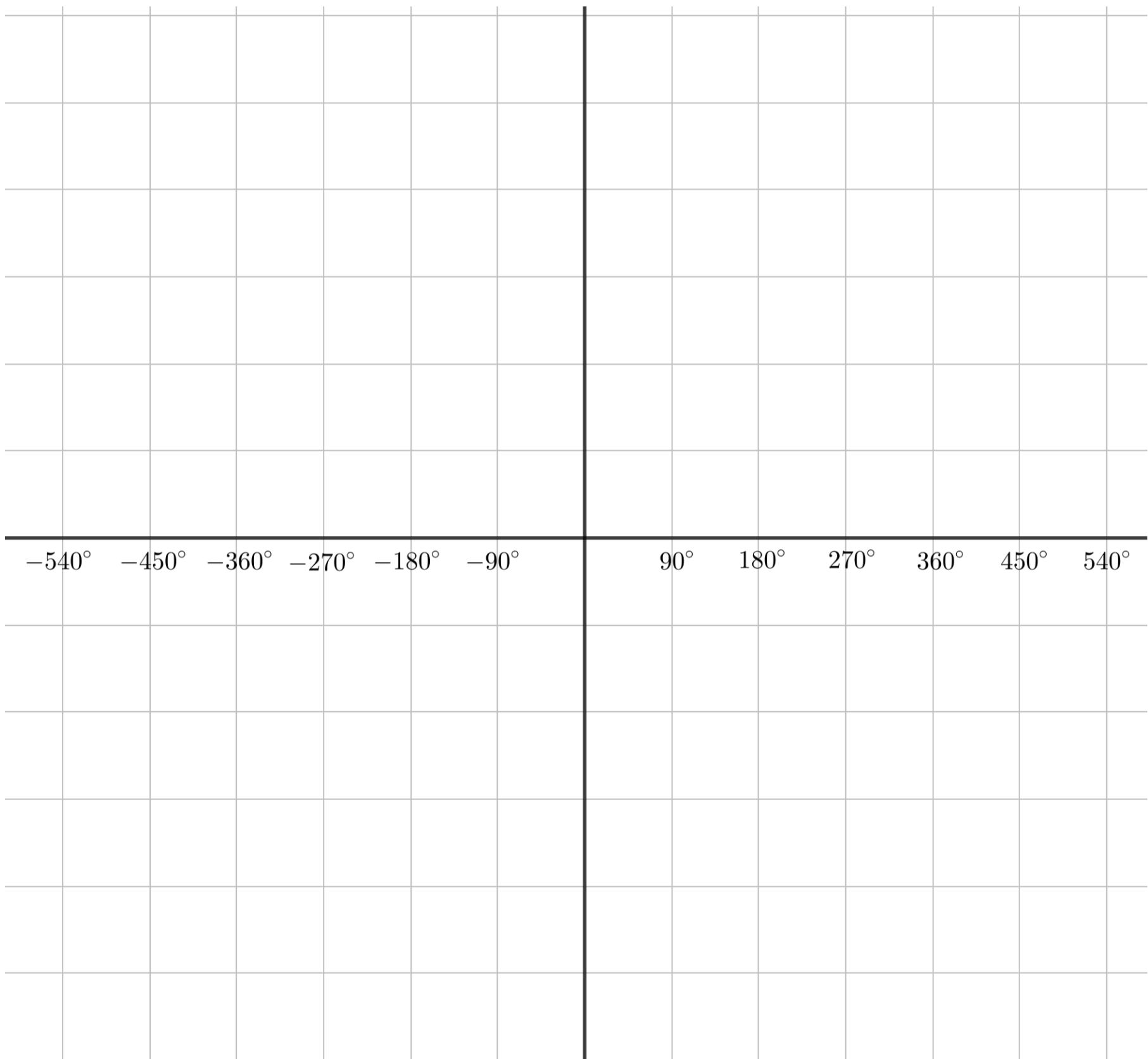


Draw the graph $y = \cos x$.



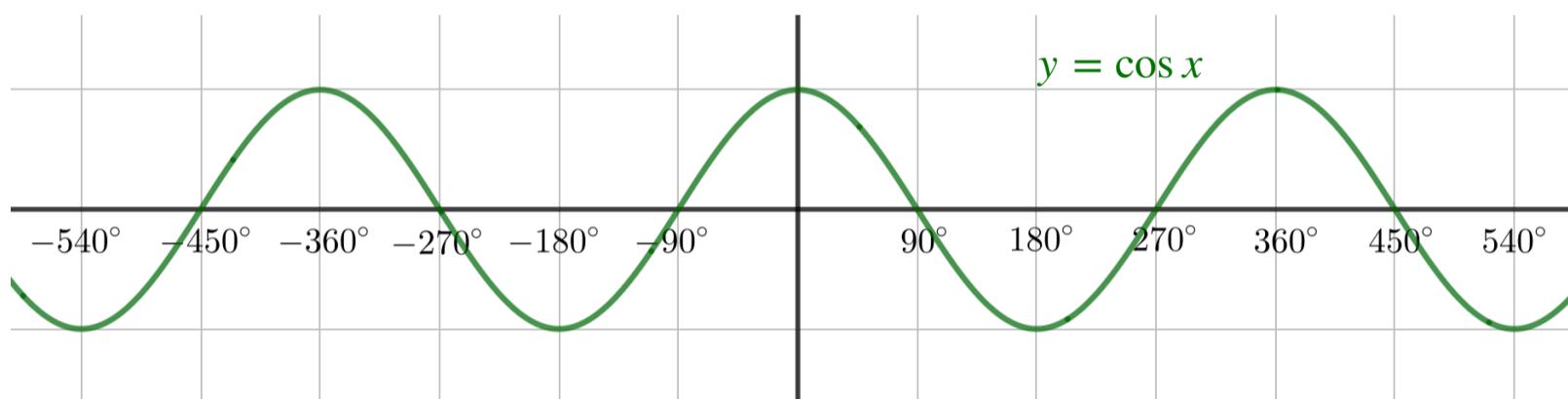
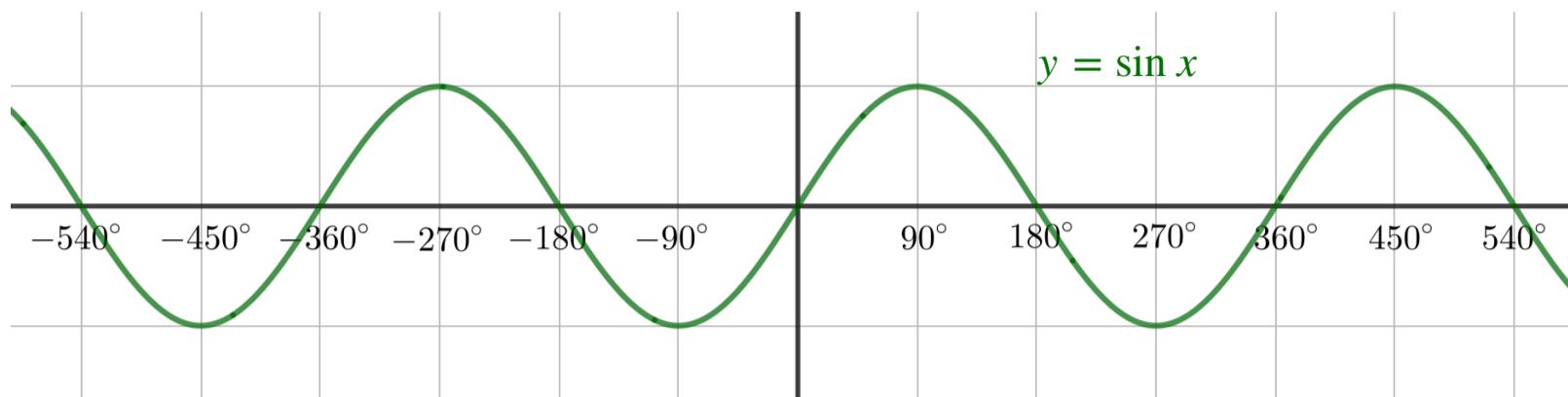
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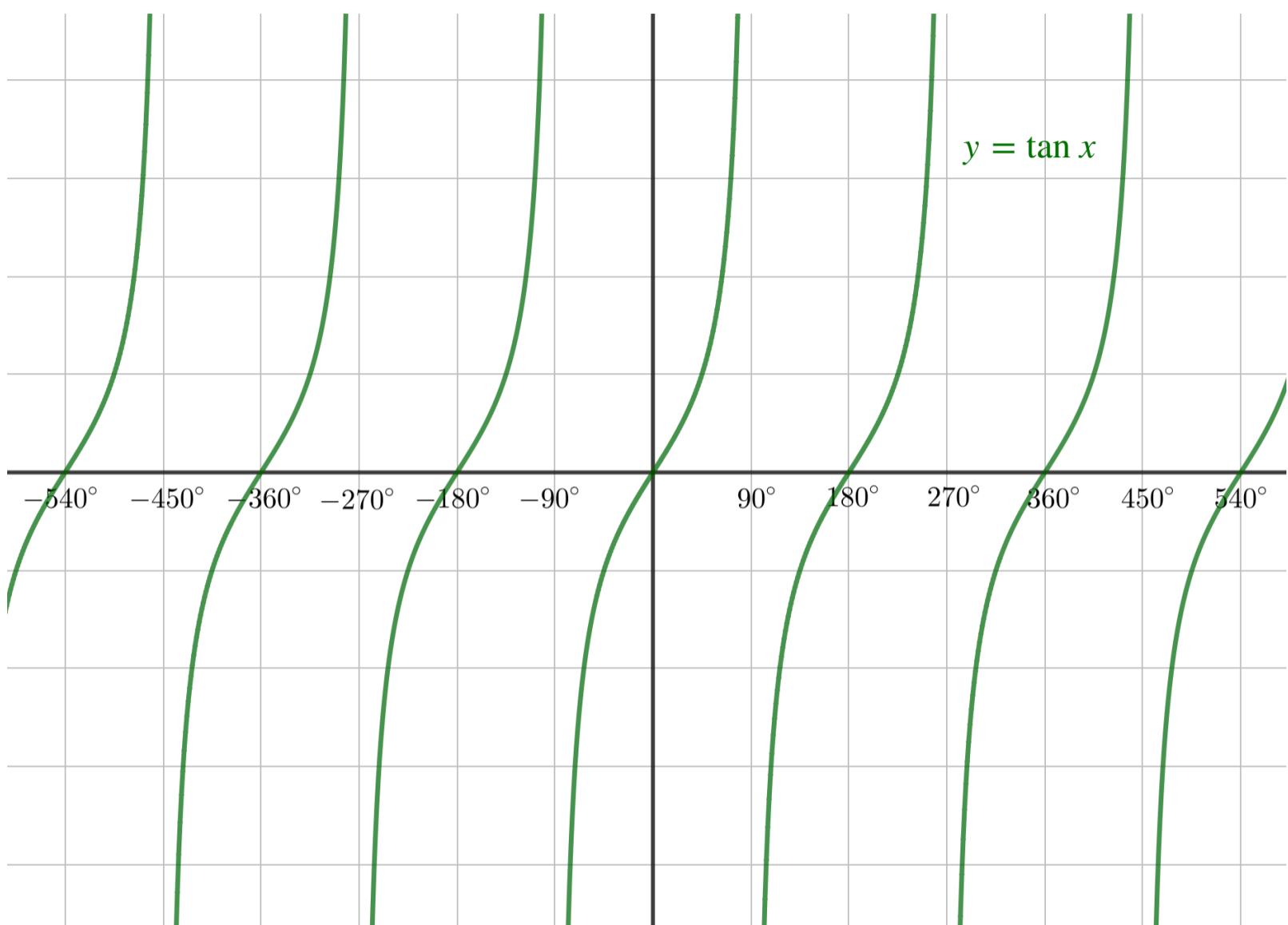
Draw the graph $y = \tan x$.



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Describe the symmetry of each of these graphs.





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