

Sets & Steps

Math Practice & Worked Solutions

AP Precalculus

Secant and Cosecant Functions

Secant and Cosecant Functions | APPC-U03-P19

96 problems · Four activity formats

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Topic focus

Across 96 tasks this topic asks for cosecant order and magnitude, cosecant value and order, cosecant value order and magnitude, exact order, exact signed and magnitude relation and exact values and order.

8 PDFs and a README; 85 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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AP Precalculus

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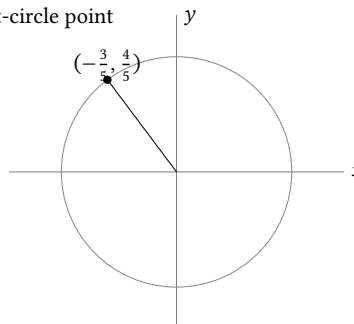
Name: _____ Date: _____ Class: _____

Answer each question and record the matching bank letter. Give exact values. Give the whole requested response, including any reasoning the question asks for.

A table gives $\cos \theta = \frac{1}{4}$ and $\sin \theta = \frac{\sqrt{15}}{4}$. Find $\sec \theta$ and $\csc \theta$ exactly.

The terminal point for θ is $(-\frac{3}{5}, \frac{4}{5})$ on the unit circle. Find $\sec \theta$ and $\csc \theta$.

Supplied unit-circle point

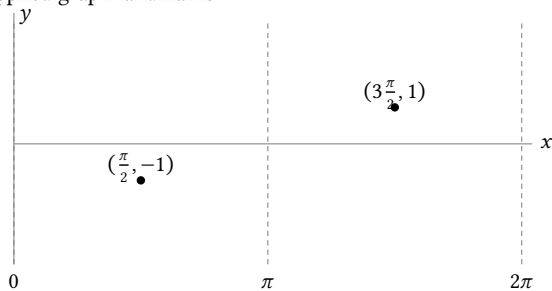


Bank label: _____

Bank label: _____

A graph has poles at $0, \pi, 2\pi$ and vertices $(\frac{\pi}{2}, -1), (3\frac{\pi}{2}, 1)$. Which listed reciprocal formula matches it?

Supplied graph landmarks



$\frac{\pi}{2}$	-1
$3\frac{\pi}{2}$	1

Bank label: _____

If $\sin \theta = 0.8$, compute $\csc \theta$ and compare the two positive values.

Bank label: _____

AP Precalculus

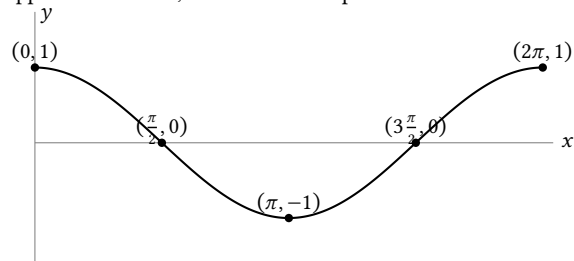
Secant and
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Name: _____ Date: _____ Class: _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. Give the whole requested response, including any reasoning the question asks for.

Construct $y = \sec x$ on $[0, 2\pi]$ from the supplied cosine landmarks. State all poles, reciprocal vertices, and branch signs.

Supplied base curve; construct its reciprocal



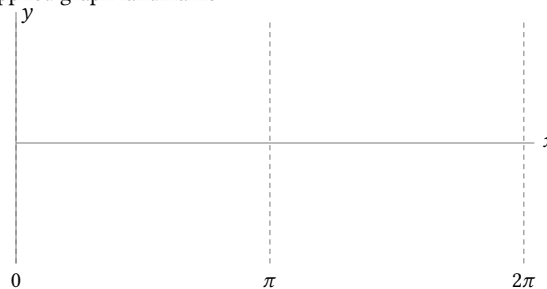
0	1
π	-1
2π	1

Derive the domain and range of $y = 2 \sec x + 3$.

For $y = \csc(2x)$, give the period, all pole locations, and the reciprocal-vertex pattern.

A cropped graph has integer- π poles, a positive first branch, and a negative second branch. Match its reciprocal formula. Choose from $\csc x$, $-\csc x$, and $\sec x$.

Supplied graph landmarks



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Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

A student claims $\sec(0) = 0$ because the angle is zero. Diagnose the reciprocal error.

A proposed $y = \csc x$ graph crosses the x -axis at $x = \frac{\pi}{2}$. Diagnose the error using the denominator value there and the reciprocal range.

A student marks $x = 0$ and $x = \pi$ as zeros of $\sec x$. Repair the graph landmarks on $[0, 2\pi]$.

A student copies $\cos \theta = 0.2$ into the secant column. Repair the table entry and state the operation required.

Secant and Cosecant Functions

Full Worked Solutions - excerpt

Worked example

Problem. A table gives $\cos \theta = \frac{1}{8}$. Find $\sec \theta$.

Answer. $\sec \theta = 8$

Explanation and check.

Invert the nonzero cosine value.

Worked example

Problem. A table lists $\sin \theta = 0$. Classify $\csc \theta$.

Answer. $\csc \theta$ is undefined

Explanation and check.

Cosecant would require division by zero.