

Trigonometry/Pre-Calculus Exam 6 Study Guide

Exam 6 covers sections 4.5-4.7. This will be a free response no calculator two hour exam. This study guide serves as a guide to your studying. In order to earn the best score on this exam, complete all assigned problems, review all notes, and confirm you are well prepared for each topic below.

Section	What will you need to do?	Textbook Problems
4.5	<ul style="list-style-type: none"> ○ Sketch the graph of a sine ($y = a \sin(bx - c) + d$) and cosine ($y = a \cos(bx - c) + d$) curve with at least two periods of length ○ Find five points on the curve ○ Find the maximum, minimum, amplitude, zeros, and period 	P. 305 Exc 39-46, 51-58
4.6	<ul style="list-style-type: none"> ○ Sketch the graph of the Tangent ($y = a \tan(bx - c) + d$) & Cotangent ($y = a \cot(bx - c) + d$) function with at least two periods of length ○ Sketch the graph of the Cosecant ($y = a \csc(bx - c) + d$) & Secant ($y = a \sec(bx - c) + d$) function with at least one period of length ○ Find the zeros, vertical asymptotes, and the period of each function 	P. 316 Exc 5-24
4.7	<ul style="list-style-type: none"> ○ Use an inverse function to write an angle as a function of x. ○ Use the properties of inverse trigonometric functions to evaluate ○ Find the exact value of arc functions ○ Write an algebraic expression that is equivalent to a composite 	P. 328 Exc 21-24, 29-46, 47-54, 55-62

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Sketch the graph (include two full periods) of each function and find the: (i) Maximum, (ii) Minimum, (iii) Amplitude, (iv) Period, and (v) Zeros. Complete a table of values by giving 5 points on the graph

$$g(x) = 3 \cos\left(x - \frac{\pi}{2}\right), \quad g(x) = 2 \sin \frac{x}{3} - 2, \quad y = \cos\left(x - \frac{\pi}{2}\right), \quad y = \frac{3}{4} \sin(2x - \pi), \quad y = \sqrt{2} \sin\left(\frac{\pi x}{2} - \frac{\pi}{4}\right),$$

$$y = 3 \cos(x + 3\pi) + 2$$

Sketch the graph (include two full periods) of each function and find the: (i) Period, (ii) Zeros, and (iii) Equation of Vertical Asymptotes (v) Zeros. Complete a table of values by giving 5 points on the graph

$$y = \sec \pi x, \quad y = 2 \tan \frac{\pi x}{2}, \quad \tan \frac{x}{4}, \quad \frac{1}{2} \csc(x - \pi), \quad y = \sec\left(2x + \frac{\pi}{4}\right), \quad y = \frac{1}{2} \csc 3x, \quad \csc \frac{x}{4}, \quad \frac{1}{2} \sec\left(\frac{\pi x}{3} - \frac{\pi}{3}\right)$$

Use the properties of inverse trigonometric functions to evaluate $\tan[\arctan(-0.53)]$.

Use the properties of inverse trigonometric functions to evaluate $\arccos\left[\cos\left(\frac{4\pi}{9}\right)\right]$.

Find the exact value of $\csc\left(\arctan \frac{11}{60}\right)$.

Find the exact value of $\cos\left(\sin^{-1} \frac{3}{5}\right)$.

Write an algebraic expression that is equivalent to $\sin\left(\arctan \frac{x}{7}\right)$.

Write an algebraic expression that is equivalent to $\tan(\arccos 5x)$