

*Contains secure questions from the College Board: Classroom use only. Photography/Scanning prohibited*

**Place your phone in your bag, and your bag in the front or back of the room**

This exam has two parts. You may not use a calculator on Part 1, and must **turn in Part 1 before taking out your calculator for Part 2**, which allows for a calculator. It is fine to start with both parts so you may decide how much time you need to use your calculator on Part 2.

The following guidelines for this exam are the same as the AP exam:

- i. Unless otherwise specified, answers (numeric or algebraic) need not be simplified. (Usually  $5/10$  or  $\sqrt{12}$  is ok, but transcendental functions are not algebraic. If it is a transcendental function don't leave it as  $\cos(\frac{\pi}{2})$ ; instead write 0. Instead of  $\ln 1$ , write 0. Instead of  $e^0$ , write 1, etc. ).
- ii. On a Free response question, do remember to specify the units (if present), but don't waste time on arithmetic ( arithmetic is  $2 + 4 * 5$ , not a formula like  $a + 5b$ ; be sure to substitute actual values into a formula).
- iii. If you use decimal approximations in calculations, your work will be scored on accuracy. Unless otherwise specified, your final answers should be accurate to three places after the decimal point. This means you should only round once, and as the last step. Store intermediate values (   A) is a fast and accurate way to do this.
- iv. Unless otherwise specified, the domain of a function  $f$  is assumed to be the set of all real numbers  $x$  for which  $f(x)$  is a real number. The inverse of a trigonometric function  $f$  may be indicated using the inverse function notation  $f^{-1}$  or with the prefix "arc" (e.g.,  $\sin^{-1} x = \arcsin x$ ).
- v. Show all of your work. Clearly label any functions, graphs, tables, or other objects that you use. Your work will be scored on the **clarity, correctness, and completeness** of your methods as well as your **answers**. Answers without supporting work will usually not receive credit (sometimes called a "bald" answer). Justifications require that you give mathematical (not calculator) reasons. You may need to show that the conditions for a theorem have been met before using the theorem to receive full credit.

	No Calculator	Calculator Active	
Multiple Choice	$14 * 2 = 28$ points	$7 * 2 = 14$ points	21 questions, 42 points (50%)
Free Response	$2 * 14 = 28$ points	$1 * 14 = 14$ points	3 questions, 42 points (50%)
	56 (66.6%)	28 (33.3%)	84 points
Recommended Time	60 min	30 min	90 min

**Part 1 - (Calculators NOT Active) starts on the next Page**

