

YOU MAY USE A CALCULATOR TO COMPUTE SOLUTIONS BUT SHOW YOUR SET-UPS.

Show all relevant work!
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Consider the function  $f(x) = \sin^2 x$ .

- ① Using  $f'$  and properties of trigonometric functions, explain why  $f'$  cannot be greater than 2.
- ② Show, using calculus, that the maximum slope of  $f(x)$  is 1.