

## Honors Math 182 Quiz 2 Version A

Feel free to use the computers, your calculator, notes and textbooks while working on this quiz. You may also use online resources such as Wikipedia, Google and Wolfram Alpha; however, do not use email or any other messaging service during the quiz.

1. A fence 7 ft tall runs parallel to a tall building at a distance of 3 ft from the building. What is the length of the shortest ladder that will reach from the ground over the fence to the wall of the building?

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2. Solve the following multiple choice questions:

(i) If  $f(x) = \sin^2(x)$  then  $f'(x) = \sin(2x)$ .

(A) True

(B) False

(ii) If  $g(x) = \sin^3(x)$  then  $g'(x) = \sin(3x)$ .

(A) True

(B) False

(iii) If  $h(x) = \int_0^x e^{-t^2} dt$  then

(A)  $h'(x) = e^{-x^2}$ .

(B)  $h'(x) = -2xe^{-x^2}$ .

(C)  $h'(x) = 2xe^{-x^2}$ .

(D)  $h'(x) = x^2e^{-x^2-1}$ .

(E) none of these.

3. Find the following derivatives:

(i)  $\frac{d}{dx} \arcsin\left(\frac{1}{1+x^2}\right)$

(ii)  $\frac{d}{dx}(1+|x|)^2$