

Name: \_\_\_\_\_ / 25

There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. **Show all work for full credit.**

1. **[15 points]** Find the derivative for each function below. You do not need to simplify. You do need to use parentheses correctly.

a.  $y = \csc(x) + \sin(\pi/4)$

b.  $f(x) = \sec(2x)$

c.  $g(x) = x^2 \cos^{-5}(x)$

d.  $h(\theta) = \sin^4(\pi\theta)$

e.  $y = \sqrt{6x + \tan(x/2)}$

2. [5 points] Find  $f''(x)$  for the function  $f(x) = \sin(2x^2)$ .

3. [5 points] Let  $g(x) = (x^2 - 6x)^5$ .

a. Find  $g'(x)$ .

b. Find all  $x$ -values where the graph of  $g(x)$  has a horizontal tangent.