Spring 2015 **Your name:** _____

Math 0220 **Your TA's name:** _____

No calculators, no notes, no books are permitted.

SHOW ALL WORK (no work = no credit). Write neatly. Simplify your answers.

1. (a) [2 points] Calculate $\dfrac{7}{24} - \dfrac{5}{36}$

(b) [2 points] Simplify and find exact value of $\dfrac{\sqrt{75} - \sqrt{48}}{3\sqrt{3}}$

2. (a) [2 points]   Solve the equation $5 - x^{\frac{1}{3}} = 3$

(b) [2 points]   Solve the inequality $\dfrac{2^x}{3^x} \le \dfrac{4}{9}$

3. (a) [2 points]   Prove the identity $\dfrac{\tan x}{\sec x} = \sin x$

(b) [2 points]   Solve the equation $\sin x \cos x = \dfrac{\sqrt{2}}{4}$.   Find all solutions.