

**MATH. 104A, HOMEWORK 4 (DUE 10/25)**

Do the following questions from the textbook:

Sect. 5.3: 1; Sect. 3.2: 1, 2, 6, 7, 9

Decide if the following statements are true or false. If you decide a statement is true, prove it. If you decide a statement is false, provide a counterexample.

(a) If  $a$  and  $b$  are relatively prime integers and  $ab$  is a square, then  $a$  and  $b$  are themselves squares.

(b)  $GCD(a, b) \cdot LCM(a, b) = a \cdot b$ .

(c)  $GCD(a^2, b^2) = GCD(a, b)^2$ .

(d) The numbers  $n$ ,  $n + 2$  and  $n + 4$  cannot all be prime.