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

(c) $\text{GCD}(a^2, b^2) = (\text{GCD}(a, b))^2$.

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