Reading Quiz Section 5.3

1. True or False: in a strong induction proof, we may have more than one base case.
2. What are some differences between strong induction and weak induction? Select all that apply.
   (a) Strong induction has no induction step, but weak induction does.
   (b) Both only have one base case.
   (c) When proving $P(n+1)$, strong induction allows one to assume all previous propositions are true, whereas weak induction only assumes $P(n)$ is true.
   (d) Weak induction is equivalent to $\mathbb{N}$ being well-ordered, but strong induction is not equivalent.
3. True or False: there is a number which is not a product of primes.

Practice Problems Section 5.3

1. Let $(f_n)_{n=1}^{\infty}$ be the Fibonacci sequence. Prove that f_n is even if and only if $n \equiv 0 \pmod 3$.
   Video Solution
2. Prove that a composite number a always has a prime factor p such that $p \leq \sqrt{a}$.
   Video Solution