1. *Let F_n denote the nth Fibonacci number. Show that $F_n = 5F_{n-4} + 3F_{n-5}$ whenever $n > 5$. Use this result to show that F_n is divisible by 5 whenever n is divisible by 5.*

   Your answer here...

2. We say that a is relatively prime to b if $(a, b) = 1$.

   (a) *Find all positive integers less than 10 that are relatively prime to 10.*

   Your answer here...

   (b) *Find all positive integers less than 11 that are relatively prime to 11.*

   Your answer here...

3. *Are there integers $a, b,$ and c so that $a \mid bc$ but $a \nmid b$ and $a \nmid c$?*

   Your answer here...

4. (a) *Show that if* $a \in \mathbb{Z}$, *then* $3 \mid a^3 - a$

   Your answer here...

   (b) *Show that if* $a \in \mathbb{Z}$, *then* $5 \mid a^5 - a$

   Your answer here...