MATH 347 HW 11

Homework Guildlines

Obviously, your solutions need to be complete and correct, but to receive full credit your write-up should also satisfy the following:

- All the important logical steps in the proof should be present and fully explained.
- All assumptions should be clearly identified.
- Your solutions should be clear and concise. If a sentence does not further the reader's understanding of the solution then it has no place in your write up.
- Use full and grammatically correct English sentences. Mathematical symbols should be used only to render complex mathematical relationships into a readable form.

Moreover, in order to obtain full credit for the homework, you must write down, in the very least, an attempt at a solution for each problem.

Problems

Do the following problems from your book: 6.2, 6.9, 6.17, 6.28. Additionally, show the following problems,

(1) Let $a, b, c \in \mathbb{Z}$. Show that $ax + by = c$ has integer solutions if and only if $\gcd(a, b)|c$.

(2) Let $a, b \in \mathbb{N}$ and let $a = da'$ and $b = db'$ where $d = \gcd(a, b)$. Show that $\gcd(a', b') = 1$.