Mathematics 216
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Homework 21
Due March 21, 2012

1. Suppose that $f : X \to Y$, and that f is an injection. Prove that for every set $A \subset X$, $f^{-1}(f(A)) = A$.

2. Use the Euclidean algorithm to solve the congruence

$$32y \equiv 11 \pmod{107}.$$

3. Suppose that the congruence $ax \equiv b \pmod{n}$ has at least one solution. Show that $(a, n)|b$.