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HW 15: 3.8-3.10
M328K
March 20th, 2012

3.8 Theorem. *Suppose* $f(x) = a_n x^n + a_{n-1}x^{n-1} + \ldots + a_0$ *is a polynomial of degree* $n > 0$ *with integer coefficients. Let* a, b, *and* m *be integers with* $m > 0$. *If* $a \equiv b \pmod{m}$, *then* $f(a) \equiv f(b) \pmod{m}$.

Proof. Type your proof here! □

3.9 Corollary. *Let the natural number* n *be expressed in base* 10 *as*

$$n = a_k a_{k-1} \ldots a_1 a_0.$$

Let $m = a_k + a_{k-1} + \ldots + a_1 + a_0$. *Then* $9|n$ *if and only if* $9|m$.

Proof. Type your proof here! □

3.10 Corollary. *Let the natural number* n *be expressed in base* 10 *as*

$$n = a_k a_{k-1} \ldots a_1 a_0.$$

If $m = a_k + a_{k-1} + \ldots + a_1 + a_0$. *Then* $3|n$ *if and only if* $3|m$.

Proof. Type your proof here! □