Extra Problems. IV.

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Divisibility Rule

Invent divisibility rules for an integer in base n.

Negative Roots

How many negative roots does the equation $x^4 - 5x^3 - 4x^2 - 7x + 4 = 0$ has?

Function

Find a real-valued function $f(x)$ that satisfies the following inequalities for any real x and y: $f(x) \leq x$ and $f(x + y) \leq f(x) + f(y)$.