Problema săptămânii 105
Fie a, b, c lungimile laturilor unui triunghi. Demonstraţi inegalităţile:

$$(a+b)\sqrt{ab}+(a+c)\sqrt{ac}+(b+c)\sqrt{bc}>\frac{1}{2}(a+b+c)^2,$$

$$\frac{\sqrt{b+c-a}}{\sqrt{b}+\sqrt{c}-\sqrt{a}}+\frac{\sqrt{c+a-b}}{\sqrt{c}+\sqrt{a}-\sqrt{b}}+\frac{\sqrt{a+b-c}}{\sqrt{a}+\sqrt{b}-\sqrt{c}}\leq 3.$$

Problem of the week no. 105
Let a, b, c be the lengths of sides of a triangle. Prove the inequalities:

$$(a+b)\sqrt{ab}+(a+c)\sqrt{ac}+(b+c)\sqrt{bc}>\frac{1}{2}(a+b+c)^2,$$

$$\frac{\sqrt{b+c-a}}{\sqrt{b}+\sqrt{c}-\sqrt{a}}+\frac{\sqrt{c+a-b}}{\sqrt{c}+\sqrt{a}-\sqrt{b}}+\frac{\sqrt{a+b-c}}{\sqrt{a}+\sqrt{b}-\sqrt{c}}\leq 3.$$