Sisteme de ecuaţii simetrice

molnar1956@yahoo.com

Ex.1 Să se rezolve sistemele de ecuaţii simetrice: $\begin{cases} xy+x+y=11 \\ x^2y+xy^2=30 \end{cases}$

$\begin{cases} xy+x+y=11 \\ x^2y+xy^2=30 \end{cases}$ Fie: $\begin{cases} x+y=s \\ xy=p \end{cases}$

$\begin{cases} s+p=11 \\ sp=30 \end{cases}$ $\quad s^2-11s+30=0 \Rightarrow s_{1,2}=\dfrac{11\pm\sqrt{121-120}}{2}=\dfrac{11\pm1}{2}$

I. $s_1=6$, $p_1=5$

$x^2-6x+5=0 \Rightarrow x_{1,2}=\dfrac{6\pm\sqrt{36-20}}{2}=\dfrac{6\pm4}{2}$

$x_1=5; y_1=1$

$x_2=1; y_2=5$

II. $s_2=5$, $p_2=6$

$s^2-5s+6=0 \Rightarrow s_{1,2}=\dfrac{5\pm\sqrt{25-24}}{2}=\dfrac{5\pm1}{2}$

$x_3=3; y_3=2$

$x_4=2; y_4=3$

$S=\{(1;5);(2;3);(3;2);(5;1)\}$