

Soluție

1. $\lceil -\sqrt{8} \rceil = -3, \{-2, 8\} = 0, 2 \Rightarrow -3, 2$.

2. $\begin{cases} s=5 \\ s^2-2p=13 \end{cases} \Rightarrow \begin{cases} s=5 \\ p=6 \end{cases} \Rightarrow (x, y) \in \{(2, 3), (3, 2)\}$.

3. $2^x = t, t^2 - 10t + 16 = 0 \Rightarrow t \in \{2, 8\} \Rightarrow x \in \{1, 3\}$.

4. $C_x^2 = \frac{x(x-1)}{2}, A_x^2 = x(x-1), x \geq 2, \frac{x(x-1)}{2} + x(x-1) = 30 \Rightarrow x = 5$.

5. $\overrightarrow{OA} = 2\vec{i} + \vec{j}, \overrightarrow{OB} = -2\vec{i} + \vec{j} \Rightarrow \overrightarrow{OA} \cdot \overrightarrow{OB} = |\overrightarrow{OA}| \cdot |\overrightarrow{OB}| \cos(\widehat{\overrightarrow{OA}, \overrightarrow{OB}}), \cos(\widehat{\overrightarrow{OA}, \overrightarrow{OB}}) = \frac{2 \cdot (-2) + 1 \cdot 1}{\sqrt{2^2 + 1^2} \sqrt{2^2 + 1^2}}$
 $\cos(\widehat{\overrightarrow{OA}, \overrightarrow{OB}}) = \frac{-3}{5}$.

6. $\operatorname{ctg} x = 3 \Rightarrow \operatorname{tg} x = \frac{1}{3} \Rightarrow \operatorname{tg} 2x = \frac{2 \cdot \frac{1}{3}}{1 - \frac{1}{9}} = \frac{3}{4}$.