

**Soluție**

$$1. \quad 1+3+3^2+\dots+3^8=\frac{3^9-1}{3-1}=\frac{3^9-1}{2}\Rightarrow 2\frac{3^9-1}{2}=3^9-1<3^9.$$

$$2. \quad x_1^3+x_2^3=s(s^2-3p), s=-5, p=-7\Rightarrow x_1^3+x_2^3=-5(25-3(-7))=-230\in\mathbb{Z}.$$

$$3. \quad \log_5 x=t, t+\frac{1}{t}=\frac{5}{2}\Rightarrow t\in\left\{2;\frac{1}{2}\right\}\Rightarrow x\in\{25;\sqrt{5}\}.$$

$$4. \quad 2x-3\geq 2, \frac{(2x-3)(2x-4)}{2}=6\Rightarrow x=3.$$

$$C_3^2=3. \text{ Deci } x=3.$$

$$5. \quad \frac{y+2}{3+2}=\frac{x+3}{2+3}\Rightarrow x-y+1=0.$$

$$6. \quad \vec{u}\cdot\vec{v}=|\vec{u}|\cdot|\vec{v}|\cos(\angle(\vec{u};\vec{v}))\Rightarrow \cos(\angle(\vec{u};\vec{v}))=\frac{5}{6}.$$