

Soluție

1. $|4x-8|=4|x-2|, |4-2x|=2|x-2| \Rightarrow f(x)=0, \forall x \in \mathbb{R}.$

2. $x^2-2x+a-1=2x+3 \Rightarrow x^2-4x+a-4=0 \Rightarrow \Delta < 0 \Rightarrow a \in (-\infty, 8)$

3. $\sqrt[3]{x-1}=x-1 \Rightarrow x-1=(x-1)^3 \Rightarrow (x-1)(x^2-2x)=0 \Rightarrow x \in \{0; 1; 2\}.$

4. $(\sqrt{3}+1)^9=(1+\sqrt{3})^9, T_{k+1}=C_9^k(\sqrt{3})^k \in \mathbb{Q} \Rightarrow \frac{k}{2} \in \mathbb{N}$

Numărul termenilor iraționali este $10 - \left(\left[\frac{9}{2} \right] + 1 \right) = 5.$

5. $\frac{m+1}{m-1} = \frac{8}{-4} \Rightarrow m = \frac{1}{3}.$

6. $\cos A = \frac{AB^2 + AC^2 - BC^2}{2 \cdot AB \cdot AC} \Rightarrow \cos A = \frac{1}{2} \Rightarrow m(\sphericalangle A) = 60^\circ.$