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Testing Solution Environment

Question 1. Write down sets in order of containment.
We pretend that equivalence classes are just numbers.

$$\mathbb{C} \supset \mathbb{R} \supset \mathbb{Q} \supset \mathbb{Z} \supset \mathbb{N} \supset \mathbb{P} \not\supset (\mathbb{F}_7 = \mathbb{Z}/7\mathbb{Z}) \supset \{\varnothing\}$$

Question 2. Give an example element of $\mathcal{O}(n)$.
Take $11n \in \mathcal{O}(n)$.

Question 3. Find roots of $x^2 - 8x = 9$.
We proceed by factoring,

$$\begin{aligned}
x^2 - 8x - 9 &= 9 - 9 && \text{Subtract 9 on both sides.} \\
x^2 - x + 9x - 9 &= 0 && \text{Breaking the middle term.} \\
x(x-1) + 9(x-1) &= 0 && \text{Pulling out common factors.} \\
(x-1)(x+9) &= 0 && \text{Pulling out common } (x-1). \\
x &\in \{1, -9\} && f(x)g(x) = 0 \Rightarrow (f(x) \vee g(x)) = 0.
\end{aligned}$$

Question 4. Show $\mathrm{P} \stackrel{?}{=} \mathrm{NP}$.
Let P be zero... Sorry.

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