Determine if each set is open, closed, compact, and/or bounded

1. $[0, 1)$

2. $[0, 1]$

3. $[0, 1] \bigcup [2, 3]$

4. $[0, \infty)$

5. $\left\{ \dfrac{1}{2}, \dfrac{1}{3}, \dfrac{1}{4}, \ldots \right\}$

6. $\mathbb{R}$

7. $\mathbb{Q} \bigcap [0, 10]$

8. $\mathbb{N} \bigcap [0, 10]$

9. $\mathbb{N}$

10. $A \subset \mathbb{R}$ is closed and bounded

Can you make any general conclusions about compact sets?