

Consider the two statements P and Q below.

P: The solution set to the equation $r = 1 + \frac{1}{r}$ is $\left\{\frac{1-\sqrt{5}}{2}, \frac{1+\sqrt{5}}{2}\right\}$.

Q: The set $A = \{x \mid |1 - x| \leq 2\}$ and the set $B = \{x \mid x \in [0, 2]\}$ are equal.

Print TRUE, FALSE or NEITHER in the blank before each proposition below according to whether it is true, false or neither.

- _____ 1. P
- _____ 2. Q
- _____ 3. $\sim Q$ (not Q)
- _____ 4. P or Q
- _____ 5. P and Q
- _____ 6. $\sim P$ or $\sim Q$
- _____ 7. $\sim(P \text{ and } Q)$
- _____ 8. If P then Q
- _____ 9. If Q then P
- _____ 10. If $\sim Q$ then $\sim P$