

13. If p , q and r are simple propositions such that $(p \wedge q) \wedge (q \wedge r)$ is true, then

(1) p , q and r are all false

(2) p , q and r are all true

(3) p , q are true and r is false

(4) p is true and q , r are false

13. (2) $(p \wedge q) \wedge (q \wedge r)$ is true which means that $p \wedge q$ and $q \wedge r$ are both true.

Therefore, p , q and r are all true.