30. If each of the statements $p \rightarrow\, \sim q$, $\sim r \rightarrow q$ and p are true, then which of the following is NOT true?

(1) q is false

(2) r is true

(3) $r \rightarrow q$ is false

(4) $r \wedge\, \sim q$ is false

30. (4) Since p is true and $p \to \sim q$ is also true, therefore $\sim q$ is true. Also, since $\sim r \to q$ is true, $\sim r$ is false and so, r is true. From above $r \to q$ is false.

31. (4)