30. For integers m and n, both greater than 1, consider the following three statements :

P : m divides n

Q : m divides n^2

R : m is prime,

then

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(a) $Q \wedge R \rightarrow P$

(b) $P \wedge Q \rightarrow R$

(c) $Q \rightarrow R$

(d) $Q \rightarrow P$

30. (a)

(b) $\frac{8}{4} = 2, \frac{64}{4} = 16$; but 4 is not prime.

Hence P $\wedge$ Q $\rightarrow$ R, false

(c) $\frac{(6)^2}{12} = \frac{36}{12} = 3$; but 12 is not prime

Hence Q $\rightarrow$ R, false

(d) $\frac{(4)^2}{8} = \frac{16}{8} = 2$; $\frac{4}{8}$ is not an integer

Hence Q $\rightarrow$ P, false