

If one of the root of the equation $x^2 + px + 12 = 0$ is 4, while the equation $x^2 + px + q = 0$ has equal roots, then the value of q is

(a) $49/4$

(b) 4

(c) 3

(d) 12

Solution:

Given $x^2 + px + 12 = 0$... (i)

Since 4 is a root of (i)

$$4^2 + 4p + 12 = 0$$

$$\Rightarrow 4p = -28$$

$$\Rightarrow p = -7$$

Given $x^2 + px + q = 0$ has equal roots.

So $D = 0$

$$p^2 - 4q = 0$$

$$\Rightarrow 49 - 4q = 0$$

$$\Rightarrow q = 49/4$$

Hence option a is the answer.