

Q 5.

A person standing on an open ground hears the sound of a jet aeroplane, coming from north at an angle  $60^\circ$  with ground level. But he finds the aeroplane right vertically above his position. If  $v$  is the speed of sound, speed of the plane is:  
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- (a)  $\frac{\sqrt{3}}{2}v$     (b)  $\frac{2v}{\sqrt{3}}$     (c)  $v$     (d)  $\frac{v}{2}$

Ans

(d) Distance,  $PQ = v_p \times t$   
(Distance = speed  $\times$  time)  
Distance,  $QR = v \cdot t$

$$\cos 60^\circ = \frac{PQ}{QR}$$

$$\frac{1}{2} = \frac{v_p \times t}{v \cdot t} \Rightarrow v_p = \frac{v}{2}$$

