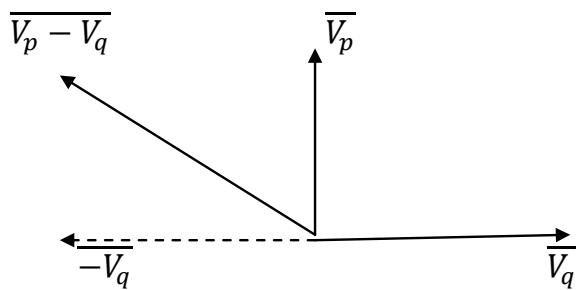


Two aircraft p and q are flying at the same speed, 300 m s^{-1} , the direction along which p is flying is at right angle to the direction along which q is flying. Find the magnitude of the velocity of aircraft p relative to aircraft q.

P.s (are they going in the same direction or opposite? I didn't get the right angle to q)

Solution



the velocity of aircraft p relative to aircraft q $\overline{V_p - V_q} = \overline{V_p} - \overline{V_q}$
its magnitude

$$|\overline{V_p - V_q}| = \sqrt{V_p^2 + V_q^2 - 2V_p V_q \cos \alpha} = \\ \sqrt{300^2 + 300^2 - 2 * 300 * 300 * \cos 90} = 424 \text{ m/s}$$

P.s. (they are perpendicular to each other)