Car A is travelling at 25 m.s-1 when it passes point X. At exactly the same time, car B, travelling towards A at 20 m.s-1, passes point Y. X and Y are 225 m apart. calculate the distance that B travels from the time it passes point Y until it meets A.

Solution

$$S = S_1 + S_2 = 225 \text{ m} = V_A t + V_B t = (V_A + V_B)t \gg t = \frac{S}{(V_A + V_B)}$$

The distance that B travels from the time it passes point Y until it meets A

$$S_2 = V_B t = \frac{S\,V_B}{(V_A + V_B)} = \frac{225 \times 20}{20 + 25} = 100 \text{ m}$$