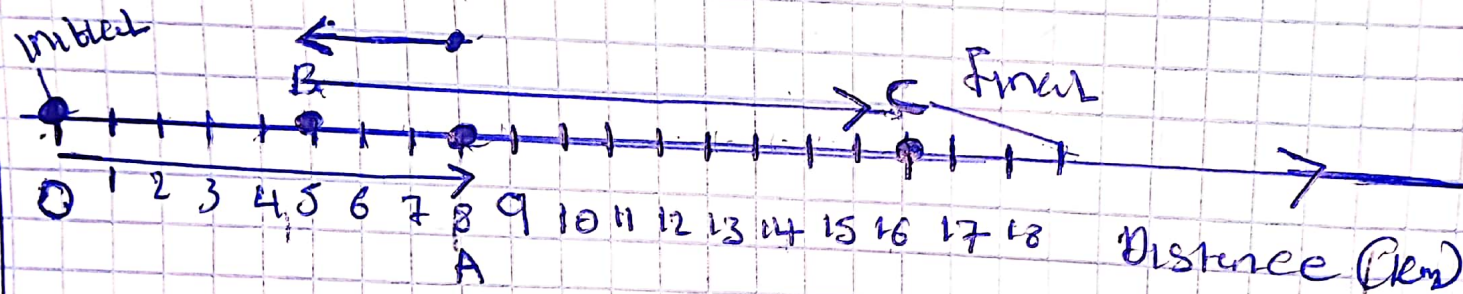


① (a) Total distance = $8\text{ km} + 3\text{ km} + 12\text{ km}$
 $= 11\text{ km} + 12\text{ km}$
 $= 23\text{ km}$

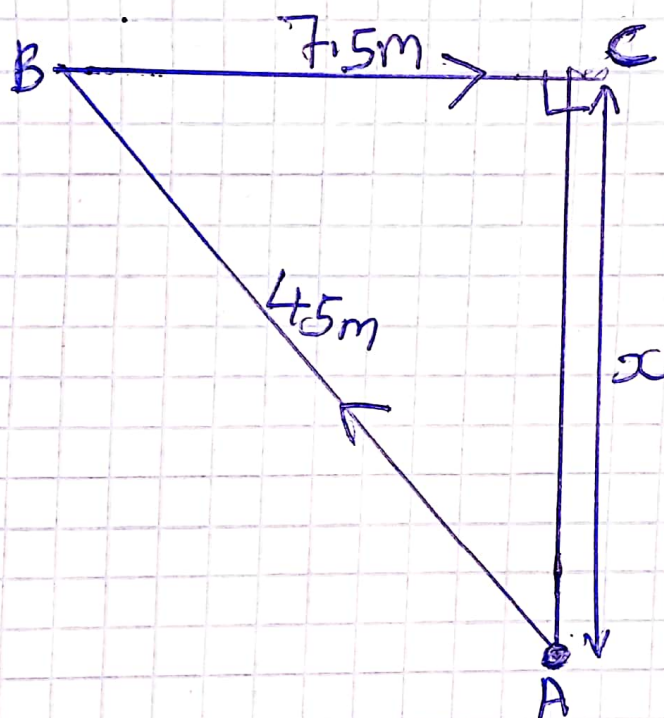


② Total displacement - Method 1
 $= \text{Final position} - \text{Initial position}$
 $= 16 - 0 = 16\text{ km}$
 $= 16\text{ km West} \Rightarrow \underline{\underline{\text{Ans}}}$

Method 2

Or Displacement between O B = $(8 - 3)\text{ m} = 5\text{ m}$
 Displacement between B C = $(16 - 5)\text{ m} = 11\text{ m}$
 Add the two displacements = $5\text{ m} + 11\text{ m} = \underline{\underline{16\text{ m}}}$

2



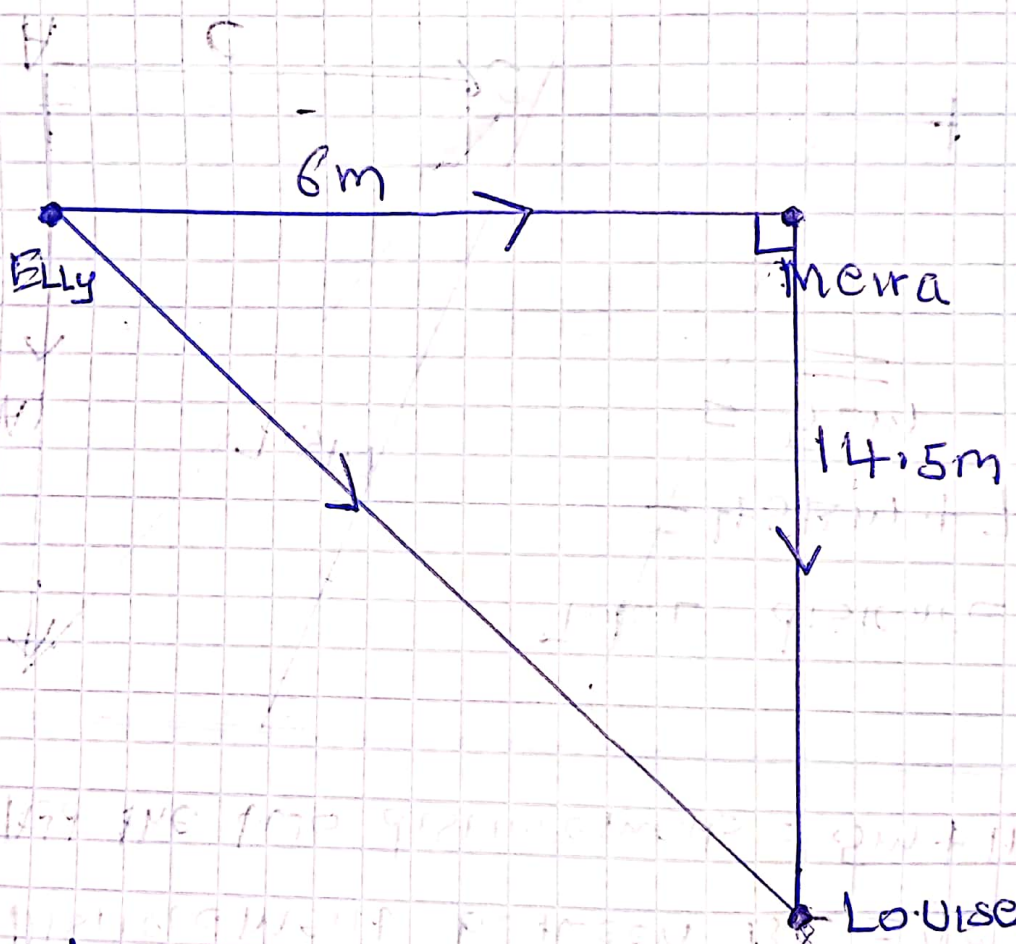
Total distance travelled from A to C is
 $45\text{m} + 7.5 = 52.5\text{m}$

Total displacement from A to C is

$$AC = \sqrt{AB^2 - BC^2} = \sqrt{45^2 - 7.5^2}$$

$$= \sqrt{45^2 - 7.5^2} \text{ m} = \sqrt{1968.75} \text{ m}$$

$$= 44.37 \text{ m}$$



Total distance travelled is $6m + 14.5m$
 $= 20.5m$

Total displacement between Elly to Louise

$$EL = \sqrt{6m^2 + 14.5^2} = \sqrt{6m^2 + 14.5m^2}$$

$$= \sqrt{246.25 m} = 15.69 m$$