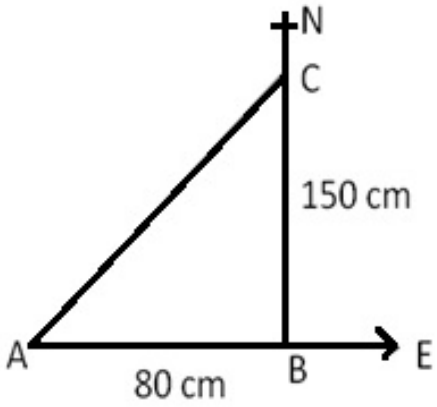
Exercise 4D

Question 2:
Starting from A, let the man goes from A to B and from B to C, as shown in the figure.

Then,

$AB = 80$ m, $BC = 150$ m and $\angle ABC = 90^0$

From right ΔABC, we have



By Pythagoras theorem, we have

$$AC^2 = \left(AB^2 + BC^2\right)m^2$$
$$= \left[(80)^2 + (150)^2\right]m^2$$
$$= (6400 + 22500)m^2$$
$$= 28900\,m^2$$

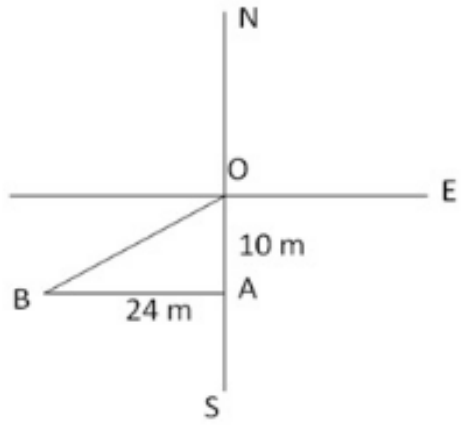
$$\therefore AC = \sqrt{28900}\ m = 170\ m$$

Hence, the man is 170m north-east from the starting point.

Question 3:
Starting from O, let the man goes from O to A and then A to B as shown in the figure.

Then,

$OA = 10$ m, $AB = 24$ m and $\angle OAB = 90^0$



Using Pythagoras theorem:

$$OB^2 = OA^2 + AB^2$$

$$\Rightarrow OB^2 = 10^2 + 24^2$$

$$\Rightarrow OB^2 = 100 + 576$$

$$\Rightarrow OB^2 = 676$$

$$\Rightarrow OB = \sqrt{676} = 26 \text{ m}$$

Hence, the man is 26 m south-west from the starting position.

********** END **********