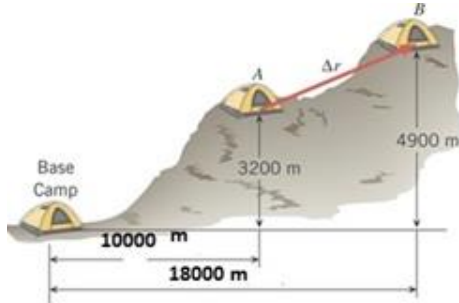


### Answer on Question #46592-Physics-Mechanics-Kinematics-Dynamics

A mountain-climbing expedition establishes two intermediate camps, labeled A and B in the drawing, above the base camp. ( $x_1 = 10000 \text{ m}$ , and  $x_2 = 18000 \text{ m}$ .) What is the magnitude  $\Delta r$  of the displacement between camp A and camp B?

#### Solution



The displacement is given by  $\overline{\Delta r} = (\Delta x, \Delta y)$  where  $\Delta x$  is difference in the x positions of the camps and  $\Delta y$  is the difference in the y positions of the camps.

$$\Delta x = x_2 - x_1 = 18000 - 10000 = 8000 \text{ m},$$

$$\Delta y = y_2 - y_1 = 4900 - 3200 = 1700 \text{ m}.$$

So  $\overline{\Delta r} = (8000; 1700) \text{ m}$ .

The magnitude  $\Delta r$  of the displacement between camp A and camp B is

$$\Delta r = |\overline{\Delta r}| = \sqrt{8000^2 + 1700^2} = 8179 \text{ m}.$$

**Answer: 8179 m.**