

8. Although we think of this as a three-dimensional movement, it is rendered effectively two-dimensional by referring measurements to its well-defined plane of the fault.

(a) The magnitude of the net displacement is

$$|\vec{AB}| = \sqrt{|AD|^2 + |AC|^2} = \sqrt{17^2 + 22^2} = 27.8 \text{ m} .$$

(b) The magnitude of the vertical component of \vec{AB} is $|AD| \sin 52.0^\circ = 13.4 \text{ m}$.