

92. (a) The slope of the graph (at a point) represents the velocity there, and the up-or-down concavity of the curve there indicates the \pm sign of the acceleration. Thus, during AB we have $v > 0$ and $a = 0$ (since it is a straight line). During BC , we still have $v > 0$ but there is some curvature and a downward concavity is indicated (so $a < 0$). The segment CD is horizontal, implying the particle remains at the same position for some time; thus, $v = a = 0$ during CD . Clearly, the slope is negative during DE (so $v < 0$) but whether or not the graph is curved is less clear; we believe it is, with an upward concavity ($a > 0$).
- (b) The key word is “obviously.” Since it seems plausible to us that the curved portions can be “fit” with parabolic arcs (indications of constant acceleration by Eq. 2-15), then our answer is “no.”
- (c) Neither signs of slopes nor the sign of the concavity depends on a global shift in one axis or another (or, for that matter, on rescalings of the axes themselves) so the answer again is “no.”