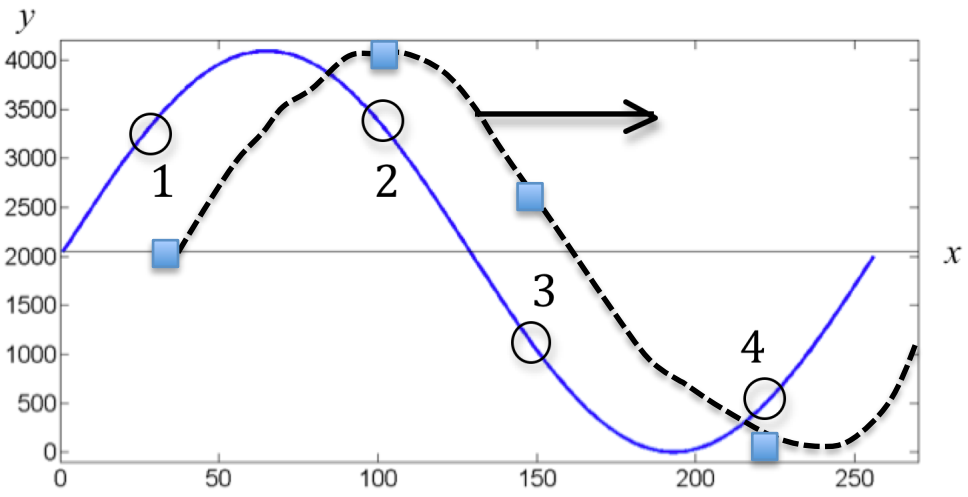
Q1

(a). Dashed line shows the snapshot required. Square shapes mark the new positions of the four particles. (The diagram is not meant to be quantitative, so marks will not be deducted if the locations of the particles are slightly different from the model answer. However, the diagram needs to be closely representing 1/8 of a period difference.)



(b) The wave travels in the positive x direction, but the individual particles move only in the $\pm$y directions. Based on the diagram, we find that at time t_0, particle 1 was moving downwards (-y), 2 moving upwards (+y), 3 moving upwards and 4 moving downwards.