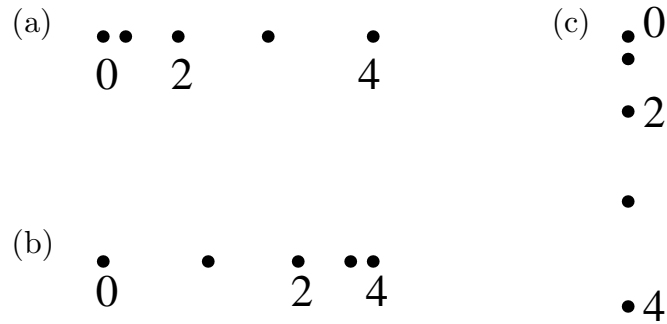
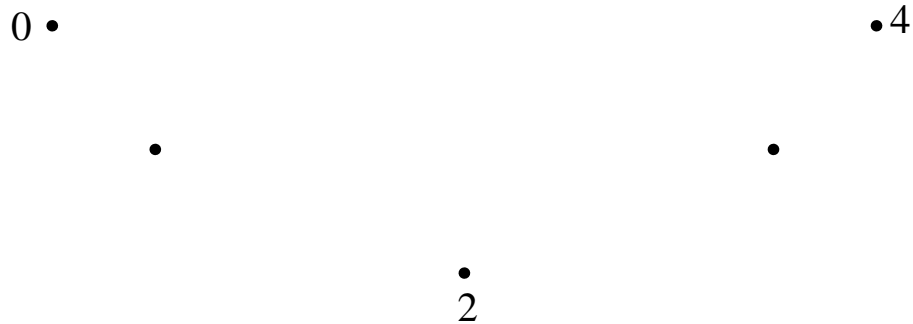


1. Below are three possible motion diagrams for a particle. For each case, draw and label an arrow to represent the net force at time 2. Are the time labels important for the directions of your arrows?



2. Consider the motion diagram below; it could be the motion diagram for one swing of a ball on a string (a pendulum). At times 0 and 4 the particle is momentarily at rest. Draw and label the net force arrow at each of the five points. Explain how you decided on the direction of the net force arrow for each time. HINT: you must write about how the velocity (both speed and direction) is changing at each dot.



3. For the motion diagram in 1(a) you are now given that the mass of the particle is 1.5 kg and that the acceleration is 3.0 m/s^2 rightwards. You are also given that there are only two forces acting on the particle, and that one of those two forces has a magnitude of 15 N and points towards the bottom of the page. Find the second force acting on the particle, magnitude and direction (relative to rightwards on the page).