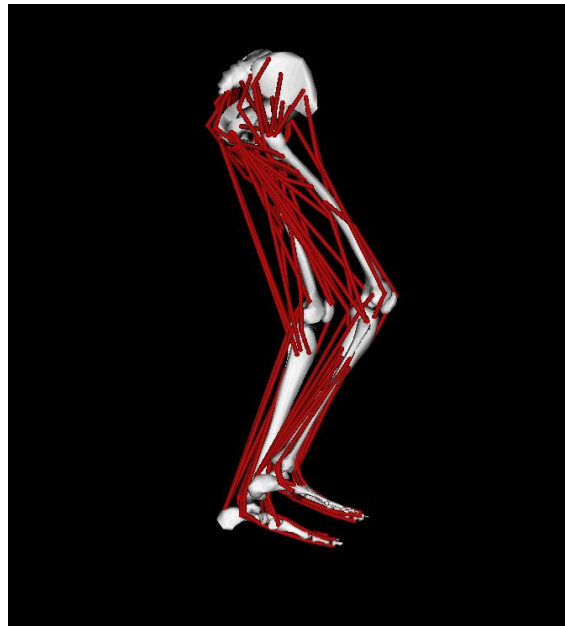

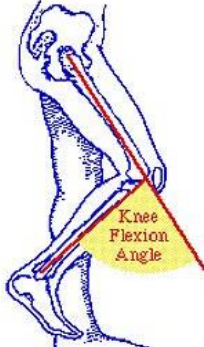
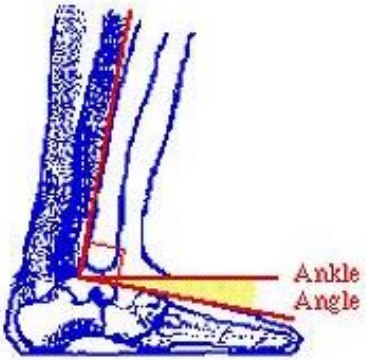


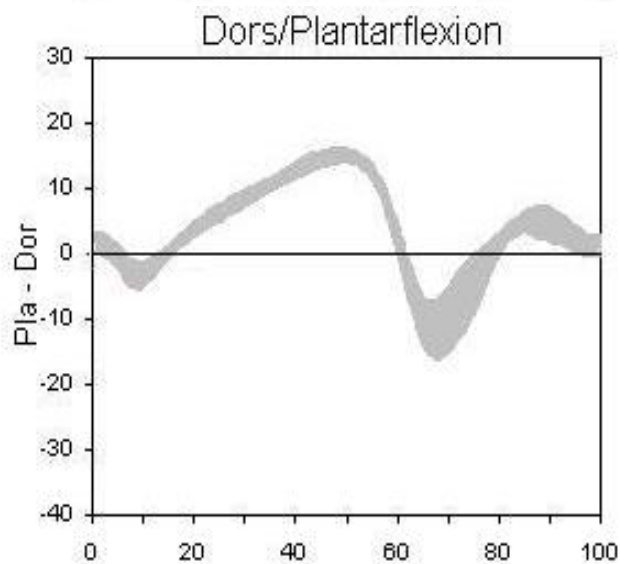
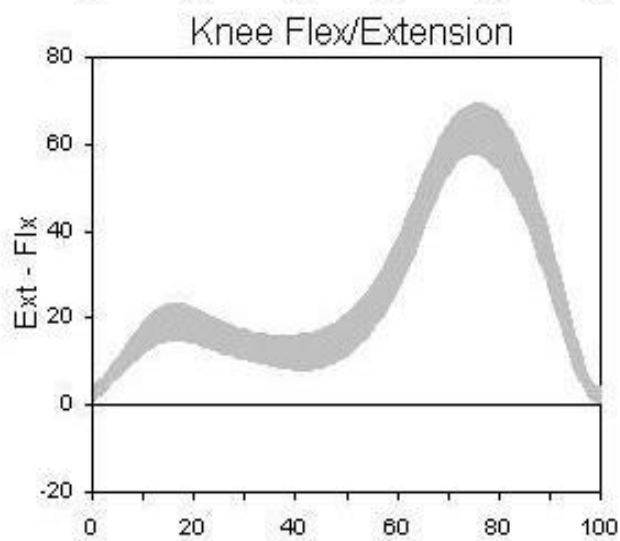
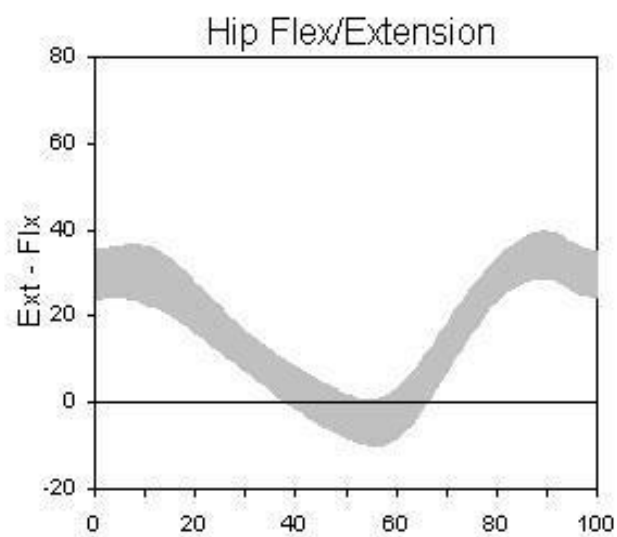
### Part 1

Watch the video of a patient walking. From the video, estimate the hip, knee and ankle angles in the sagittal plane throughout the gait cycle. Record your results on the graphs overleaf, which contain able-bodied joint angles (in grey) for your reference.



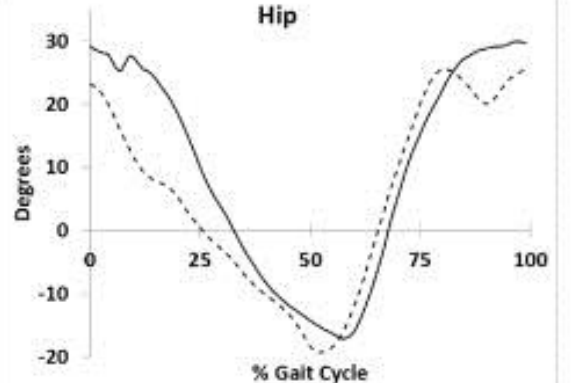
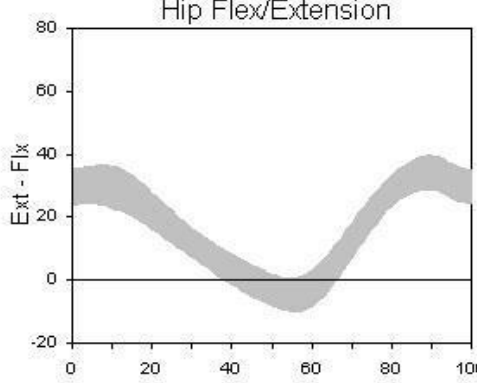
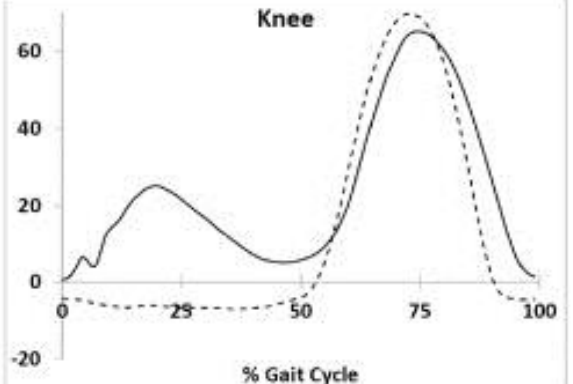
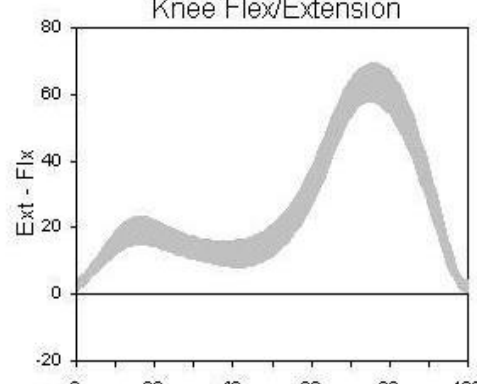
Use the joint angle convention summarised in the table below.

Hip	Knee	Ankle
		



## Part 2

Working in groups of around five people, convert the kinematic graphs in the left column of the table to a walking gait. Choose one person to act as the subject. Can you determine the gait pathology? Able-bodied kinematic parameters (right column) have been included for your reference.

<b>Gait Pathology</b> (Solid line, left side; dotted line, right side)	<b>Able-bodied</b>
 <p><b>Hip</b></p> <p>Y-axis: Degrees (-20 to 30). X-axis: % Gait Cycle (0 to 100). The solid line (left side) starts at ~28°, dips to ~-15° at 60% cycle, and rises to ~28° at 100%. The dotted line (right side) starts at ~25°, dips to ~-18° at 60% cycle, and rises to ~25° at 100%.</p>	 <p><b>Hip Flex/Extension</b></p> <p>Y-axis: Ext - Flex (-20 to 80). X-axis: % Gait Cycle (0 to 100). The shaded area shows a normal range of motion, peaking at ~35° flexion around 15% and ~90% cycle, and dipping to ~-10° extension around 60% cycle.</p>
 <p><b>Knee</b></p> <p>Y-axis: Degrees (-20 to 60). X-axis: % Gait Cycle (0 to 100). The solid line (left side) has a small peak of ~25° at 25% cycle and a large peak of ~65° at 75% cycle. The dotted line (right side) has a small peak of ~25° at 25% cycle and a large peak of ~70° at 75% cycle.</p>	 <p><b>Knee Flex/Extension</b></p> <p>Y-axis: Ext - Flex (-20 to 80). X-axis: % Gait Cycle (0 to 100). The shaded area shows a normal range of motion, peaking at ~20° flexion around 15% cycle and ~70° flexion around 75% cycle.</p>