Chapter 7 – Quick Revision Sheet

Motion

🚙 Motion

Motion happens when an object keeps changing its position with time. If the location of something changes relative to a reference point, it is moving. From a car on the highway to the Earth orbiting the Sun, motion is simply movement + time working together.

➡️ Distance vs Displacement

Distance → *Total path travelled* **(no direction, always positive).**
Displacement → *Shortest straight path from start to end* **(has direction, can be zero).**

⚡ Speed — *"How Fast?"*

Speed tells how fast something moves.
Formula: Speed = Distance ÷ Time
SI Unit → m/s

🧭 Velocity — *"How Fast + Which Way?"*

Velocity = Speed + Direction
If direction changes, velocity changes — even if speed stays the same.

⏱️ Uniform Motion

When an object covers equal distances in equal time intervals, its motion is called uniform motion. The speed stays constant and the motion becomes predictable, like a train moving steadily on a straight track.

🔄 Non-Uniform Motion

If an object covers unequal distances in equal time intervals, the motion becomes non-uniform. This happens when speed keeps changing — for example, a car moving in city traffic where it repeatedly speeds up and slows down.

🚀 Acceleration — *"Change in Motion"*

Acceleration = Change in velocity ÷ Time
It occurs when an object speeds up, slows down, or changes direction.

🔵 Circular Motion

In circular motion, an object moves around a fixed center along a circular path. Even if the speed stays the same, the direction keeps changing continuously, which means the object is always accelerating.