Of course. Here is a quick snapshot of the key formulas and concepts from the chapter on Forces for your revision.

Key Concepts 📝

- [cite_start]**Effects of a Force**: A force is a push or a pull that can change an object's **speed**, **direction of motion**, **shape**, or **size**[cite: 727].
- [cite_start]**Hooke's Law**: For an elastic object like a spring, the extension is directly proportional to the stretching force, as long as the **limit of proportionality** is not exceeded[cite: 746, 749].
- [cite_start]**Resultant Force**: A single force that has the same effect as all the individual forces acting on an object combined[cite: 820]. [cite_start]If forces are balanced, the resultant force is zero, and there is no change in motion[cite: 812].
- [cite_start]**Newton's First Law**: An object will remain at rest or continue moving in a straight line at a constant speed, unless acted upon by a resultant force[cite: 878]. [cite_start]This property of resisting changes in motion is called **inertia** [cite: 890][cite_start], and an object's **mass** is the measure of its inertia[cite: 898].
- [cite_start]**Newton's Second Law**: The acceleration of an object is directly proportional to the resultant force acting on it and inversely proportional to its mass ($a \propto F/m$)[cite: 938, 939].
- [cite_start]**Newton's Third Law**: Forces always occur in equal and opposite pairs[cite: 1028]. [cite_start]If body A exerts a force on body B, body B exerts an equal but opposite force on body A[cite: 1027].
- [cite_start]**Friction and Drag**: **Friction** is a force that opposes motion between surfaces in contact and produces heat[cite: 1003, 1020]. [cite_start]**Drag** is the specific name for friction acting on objects moving through a liquid or gas (like air resistance)[cite: 1022, 1023].
- [cite_start]**Circular Motion**: An object moving in a circle is accelerating because its velocity is constantly changing direction[cite: 1067]. [cite_start]This acceleration requires a resultant force, called the **centripetal force**, which always acts towards the center of the circle[cite: 1078].

Key Formulas ➗

- **Hooke's Law / Spring Force**
  [cite_start]$F = kx$ [cite: 782]
  - **F** = Force applied (in N)
  - [cite_start]**k** = Spring constant (in N/m) [cite: 778]

    - **x** = Extension (in m)
- **Newton's Second Law of Motion**
  [cite_start]$F = ma$ [cite: 948]
    - **F** = Resultant force (in N)
    - **m** = Mass (in kg)
    - **a** = Acceleration (in m/s^2)