# Newton's Laws I-1

**Superposition of forces (1).**

Trick question! Forces have to cancel when the velocity is constant. Therefore, the velocity is not needed.

$$\vec{F}_3 = -\vec{F}_1 - \vec{F}_2 \,.$$

**Forces (2):** Friction is neglected in this problem.

**Concorde (3):** $v = a\,t \quad \Rightarrow \quad t\,, \quad x = f(t)\,, \quad f(t) = ?.$

**Force needed (4):**

$$a = \frac{v}{t}\,, \quad F = m\,a\,, \quad x = \frac{v}{2}\,t\,.$$

**Penguin: (5):**

$$v_y = t\,\frac{F_y}{m}\,.$$

# Newton's Laws I-2

**Frozen Lake (6):**

$$a = \frac{F}{m} \quad (a\,,\ F \text{ magnitudes})\,.$$

**Motion and Forces (7):**

$$v_x = a_x\, t\,, \quad a_x = \frac{F_x}{m}\,.$$