Exercise in mathematical formulae in LATEX

The solutions of a quadratic equation $ax^2 + bx + c = 0$ are given by the formulae

$$x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a} \quad \text{and} \quad x_2 = \frac{-b - \sqrt{b^2 - 4ac}}{2a}.$$

The set $\{x \text{ such that } x^2 \geq 9\}$ is equal to the set $(-\infty; -3] \cup [3; \infty)$.

A finite sum of a geometric progression

$$a_0 + ra_0 + r^2a_0 + r^3a_0 + \cdots + r^ka_0$$

with ratio $r \neq 1$ is equal to

$$\sum_{i=0}^{k} r^i a_0 = a_0 \left(\frac{1 - r^{k+1}}{1 - r} \right).$$

The infinite sum of a geometric progression

$$a_0 + ra_0 + r^2a_0 + r^3a_0 + \cdots$$

with ratio r satisfying $0 < r < 1$ is equal to

$$\sum_{i=0}^{\infty} r^i a_0 = \frac{a_0}{1 - r}.$$