Chapter 1.3. Problems: #3 (hint: use induction); #5, #9, #12 (assuming $X \geq 0$; both r. variables X and Z are discrete); #24

Chapter 2.1. (#13) Let X_n be a random walk on $\mathbf{Z}$ with $X_0 = 0$ and

$$
\begin{aligned}
\mathbf{P}\left(X_1 = U_1 = 1\right) &= p \in (0, 1), \\
\mathbf{P}\left(X_1 = U_1 = -1\right) &= q = 1 - p.
\end{aligned}
$$

Use the law of large numbers to prove that $X_n/n \to p - q$ as $n \to \infty$. The exact content of the cinclusion depends on the version of the law.