Exercise Supplemental 1: Show that the sequence $(-1)^n$ does not converge.

Proof. □

Exercise Supplemental 2:

(a) Show that for all $n \in \mathbb{N}$, $2^n \geq n$.

(b) Show that $\lim_{n\to\infty} 1/2^n = 0$.

Part (a). □

Part (b). □

Exercise 2.2.2: From the definition, compute the given limits.

Part (a). □

Part (b). □

Part (c). □

Exercise 2.2.3: Describe what needs to be shown to disprove the given statements.

Solution:

(a)

(b)

(c)

Exercise 2.2.6: Prove that limits are unique.

Proof. □

Exercise 2.2.5(a): Determine, with a proof, $\lim_{n\to\infty}[[5/n]]$.

Solution:
Claim: The limit is ??.

Proof. □

Exercise 2.3.9(a)(c):

(a) If (a_n) is a bounded sequence and $b_n \to 0$, show $a_n b_n \to 0$.

(c) Prove Theorem 2.3.3(iii) for the case $a = 0$.

Solution:

(a) *Proof.* □

(c) *Proof.* □