Additional problems:
A1. Let \( f : \mathbb{R} \to \mathbb{R} \) be a function with \( f''(x) > 0 \) everywhere (i.e. \( f(x) \) is concave upward). Show that the convex hull of \( \{ y = f(x) \} \) in \( \mathbb{R}^2 \) is the set \( \{ y \geq f(x) \} \).
A2. What is the convex hull of \( \{ y = f(x) \} \) if \( f(x) \) is a function with \( f''(x) < 0 \) (i.e. \( f(x) \) is concave downward)?

Hints
2.7 (f) Change \(-\pi/2 < x < \pi/2\) to \(-\pi/2 < y < \pi/2\). It is a misprint IMO.
2.11 Change \( x \in \text{bd}(S) \) to \( z \in \text{bd}(S) \). It is an obvious typo.
2.19 (b) Let \( S = \{ x > 0 \} \subset \mathbb{R}^2 \). Show that \( S \) is convex and the boundary of \( S \) is also convex.
A1. Prove the fact that the graph of \( y = f(x) \) is always above any of its tangent lines. You need mean value theorem.
A2. Consider \( y = -f(x) \), which is concave upward.