Please let me know if any of the problems are unclear or have typos.

Exercise 6.1. Suppose that $f\colon (F, \partial F) \to (B^3, \partial B)$ is a general position map with two simple branch points, with one double arc, and with one sector (which is an annulus). Enumerate the possibilities and, for each, draw accurate pictures of F, $\Sigma(f)$, and $f(F)$.

Exercise 6.2. Suppose that $f\colon F \to S^3$ is a general position immersion. Thus f has no simple branched points and $\partial F = \emptyset$. Suppose that f has exactly one triple point, three double arcs, and no double curves. Finally, suppose that all sectors of f are disks. Enumerate as many possibilities as you can, and for each, draw accurate pictures of F, $\Sigma(f)$, and $f(F)$.

Exercise 6.3. Show that Dehn's Lemma follows from the Disk Theorem.

Exercise 6.4. Suppose that $K \subset S^3$ is a knot and let $X_K = S^3 - n(K)$ be its exterior. Show that K is isotopic to the unknot if and only if $\pi_1(X_K) \cong \mathbb{Z}$.

Exercise 6.5. Suppose that $\mathbb{F}_g$ is the free group on g generators. Suppose that M^3 connected, compact, oriented, irreducible, and has $\pi_1(M) \cong \mathbb{F}_g$ with $g > 0$. Show that M is a handlebody. [Hint: This is easier to prove with Kneser's Hilfsatz in hand.]