1-3. 16/2a,c,d.

4. The equivalence of phase diagrams can miss some interesting behavior. It is concerned mostly with $|t|$ very large. That accounts for "most" times. But interesting things can occur for moderate times.

Consider the function $f$ from figure 1.12 shifted downward so that the peak at $x = 0$ is just barely below the $x$-axis. This function yields a differential equation whose phase portrait is equivalent to that of $x' = x^2 - 1$.

Describe in words how the solutions of the first behave differently from the solutions of the second.

5-8. The first four problems on page 15. For the last one, do not choose an exceptional value of $b$. 