Some common troublespots

Using previous experience as a guide, here are some specific topics and problem types where students tend to have trouble:

1. Interpretation of derivatives in context.
   E.g., Pg.144:47b, 49, 50, 51. Pg.166:33.   Pg.168: 46b.

2. Derivatives of functions that contain absolute values.
   E.g., Pg.158:51. Pg.205:46a. Pg.248(true/false):10.
   More examples: $y = \sqrt{|x - 1|}$, $y = |x| - x^2$, $y = |x - x^2|$

3. Using the limit-based definition of the derivative consistently and correctly. There are two potential sources of problems/errors here:
   (a) Correctly plugging into the derivative formula – E.g., set up the formula for $f'(a)$ for each: $f(x) = e^x$, $f(x) = e^{x^2}$, $f(x) = 1/\sqrt{2x - 3}$. $f(x) = \sin x/x$.
   (b) Correctly doing the algebra and finding the answer – E.g., find $f'(a)$ for each: $f(x) = 1/\sqrt{2x - 3}$, $f(x) = 1/(2x - 3)$

4. Finding equations of tangent lines when you are given information other than the point of tangency.
   E.g., Pg.182:52, 53. Pg.190:54. Pg.249:64.
   Also, finding points where the tangent line is horizontal, especially with trig functions.
   E.g., Pg.182:50. Pg.196:31, 32. Pg.205:49, 50.

5. Finding derivatives of functions in which constants are shown as generic letters of the alphabet.
   E.g., Pg.181:25. Pg.189:21. Pg.196:38a. Pg.206:70, 74.