10.7: 27, 38;
10.8: 15, 26;
11.1: 28;
11.2: 3, 7, 11, 13, 47, 50, 61 (important!);
11.3: 6, 9, 12, 17, 18, 47;
11.4: 5, 7, 9, 12, 26, 27, 36;
11.5: 3, 9, 21, 33, 34;

To hand in:

(1) Suppose that f is a differentiable function on $(0, \infty)$ such that $f'(x) \to 0$ as $x \to \infty$. Show that

$$\lim_{n\to\infty} (f(n+1) - f(n)) = 0\,.$$

For instance, if $0 < p < 1$ then $(n+1)^p - n^p \to 0$ as $n \to \infty$ even though $n^p \to \infty$ as $n \to \infty$.