Math-71 Sections 9, 11, 12

Exam #1 Cheat Sheet

Useful parts:

1. $$\lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$
2. Instantaneous rate of change at x.
3. Slope of the tangent line at x.
4. $f(c)$ exists.
5. $\lim_{x \to c} f(x)$ exists.
6. $\lim_{x \to c} f(x) = f(c)$

Assume $f(x)$ and $g(x)$ are differentiable and $c \in \mathbb{R}$:

1. $\frac{d}{dx}[c] = 0$
2. $\frac{d}{dx}[x^c] = cx^{c-1}$
3. $\frac{d}{dx}[cf(x)] = cf'(x)$
4. $\frac{d}{dx}[f(x) \pm g(x)] = f'(x) \pm g'(x)$
5. $\frac{d}{dx}[f(x)g(x)] = f(x)g'(x) + f'(x)g(x)$
6. $\frac{d}{dx}\left[\frac{f(x)}{g(x)}\right] = \frac{g(x)f'(x) - g'(x)f(x)}{[g(x)]^2}$