Problems - 2.1/2.2 Limit Laws

(1) Show that for all numbers a, c, d,

$$\lim_{x \to a} cx + d = ca + d.$$

(2) Use Theorems 2.2, 2.3, 2.5, 2.6 to show that for all numbers a, c, d, e,

$$\lim_{x \to a} cx^2 + dx + e = ca^2 + da + e.$$

(C2) Prove Corollary 2 part 1: The function $f(x) = \frac{1}{x}$ is continuous for every value of $x \neq 0$.

(13) Prove Th 2.8 (Limit of a Quotient): Suppose that

$$\lim_{x \to a} f(x) = L \quad , \quad \lim_{x \to a} g(x) = M$$

If $M \neq 0$, then

$$\lim_{x \to a} \frac{f(x)}{g(x)} = \frac{L}{M}$$