

Example 1. (Hughes-Hallett, 4e, 2.3#5) The cost, $C = f(w)$, in dollars, of buying a chemical is a function of the weight bought, w , in pounds.

- (a) In the statement $f(12) = 5$, what are the units of the 12? What are the units of the 5? What is C ? Explain what this is saying about the cost of buying the chemical.
- (b) Do you expect the derivative f' to be positive or negative? Why?
- (c) Rewrite the statement $f'(12) = 0.4$ in Leibniz notation. What are the units of the 12? What are the units of the 0.4? Explain what this is saying about the cost of buying the chemical?

Example 2. (Hughes-Hallett, 4e, 2.3#29) For some painkillers, the size of the dose, D , given depends on the weight of the patient, W . Thus, $D = f(W)$, where D is in milligrams and W is in pounds.

- (a) Interpret the statements $f(140) = 120$ and $f'(140) = 3$ in terms of this painkiller.
- (b) Use the information in the statements of part (a) to estimate $f(145)$.