**Math 161 Written HW B**

***Due: 31 October 2018***



**I** Albertine is trying to find the following limit:



Please help her.

**II** Suppose that *f* and *g* are differentiable functions satisfying:

f(3) = -1, g(3) = -4, f ′(3) = 5, and g′(3) = -1.

1. Let H(x) = (f(x) + 2g(x) + 1)(f(x) – g(x) – 4).

Compute H′(3) (Hint: Use shortcuts here.)

1. Let

Compute

**III** Albertine exclaims that the following problem is quite easy. Do you agree with her? Justify your answer!

Let f be differentiable at x = a, where a > 0. Evaluate the following limit in terms of .

**IV** Swann finds the following limit problem to be difficult. Please help him.

(Calculator solutions will earn no credit. Nor will using L'Hôpital's rule)



*Hint: Begin by rationalizing the numerator.*

*The more you know, the less sure you are.*

**-** [Voltaire](http://plato.stanford.edu/entries/voltaire/)

