

Math 162**Quiz 8**

Show all work in a neat and organized fashion. Clearly indicate your answers.
10 points possible.

1. (3 pts.) At the end of World War I, in the fall of 1918, an influenza epidemic hit the United States Navy. It spread to the Army, to American civilians, and ultimately to the world. It is estimated that by 1920, twenty million people had died from the epidemic. Five hundred fifty thousand of these were Americans—over ten times the number of WWI battle deaths. The tables below give the total numbers of Navy, Army, and civilian deaths due to the epidemic (A. W. Crosby, Jr., *Epidemic and Peace 1918*, Westport, Connecticut: Greenwood Press, 1976).

Week ending	Total Deaths		Total Civilian Deaths in 45 Major Cities
	Navy	Army	
August 31	2		
September 7	13	40	
September 14	56	76	68
September 21	292	174	517
September 28	1172	1146	1970
October 5	1823	3590	6528
October 12	2338	9760	17,914
October 19	2670	15,319	37,853
October 26	2820	17,943	58,659
November 2	2919	19,126	73,477
November 9	2990	20,034	81,919
November 16	3047	20,553	86,957
November 23	3104	20,867	90,449
November 30	3137	21,184	93,641

How rapidly (on average) did the number of deaths from influenza increase in the Navy between August 31, 1918 and October 12, 1918?

2. Give the derivative formula for each function.

(a) (1 pt.) $y = x^4$

(b) (2 pts.) $f(x) = \frac{1}{5}x^5 - \frac{1}{3}x^3$

(c) (2 pts.) $g(x) = 12(3.752)^x$

(d) (2 pts.) $h(x) = \frac{7}{x^5}$