Unit 3 Take Home Quiz: AP Exam Practice

*Tape original questions and complete all problems in your AP Prep Composition Book. **Show all work.** Be mindful that I will also be checking to make sure that all AP Style Questions we have done in class are completed and corrected in your prep book as well. An updated table of contents can be found on the course website under Unit 3.*

1. The table below gives values of the functions f and g and their derivatives at selected values of x.

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	-6	3	2	8
2	2	-2	-3	0
3	8	7	6	2
6	4	5	3	-1

   a) Let $k(x) = f(g(x))$. Write an equation for the line tangent to the graph of k at $x = 3$.

   b) Let $h(x) = \frac{g(x)}{f(x)}$. Find $h'(1)$.

2. Consider the curve given by $x^2 + 4y^2 = 7 + 3xy$.

   a) Show that $\frac{dy}{dx} = \frac{3y - 2x}{8y - 3x}$.

   b) Find $\frac{d^2y}{dx^2}$. Then, find the value of $\frac{d^2y}{dx^2}$ at the point (3,2).