Math 126B **Calculus With Analytic Geometry III** **Fall 1995**

QUIZ #1 ANSWERS

9/28/95

Straight lines must be drawn with a ruler; no credit will be given if drawn by hand. Don't worry about algebraically simplifying numbers (i.e. you may leave radicals in the denominator, fractions unreduced, etc.). **Show your work.**

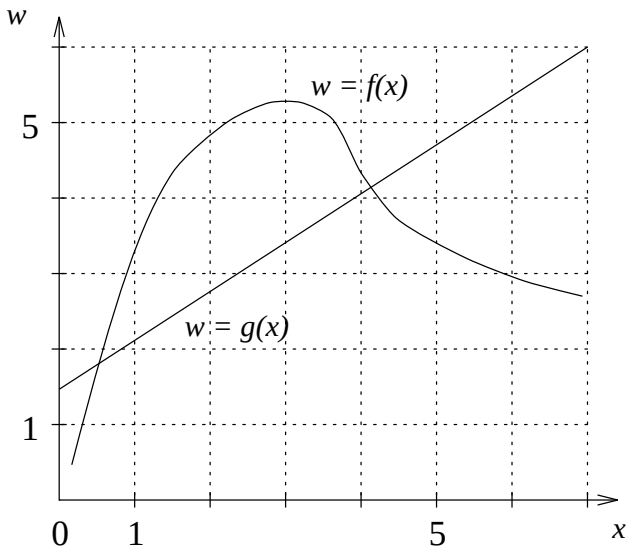
The two functions $w = f(x)$ and $w = g(x)$ are given by their graphs below. We define a new function $h(x)$ by $h(x) = f(g(x))$.

1. Find $h(6)$.

   ANSWER: $h(6) = f(g(6)) = f(5.3) = 3.2$.

   $h(6) =$ 3.2

2. Find x such that $h'(x) = 0$.

   ANSWER: By the chain rule, $h'(x) = f'(g(x))g'(x)$. Now $g'(x)$ is never zero, so the only way $h'(x)$ can be zero is if $f'(g(x)) = 0$. This occurs only when $g(x) = 3$, so x must be 2.4.

   $x =$ 2.4