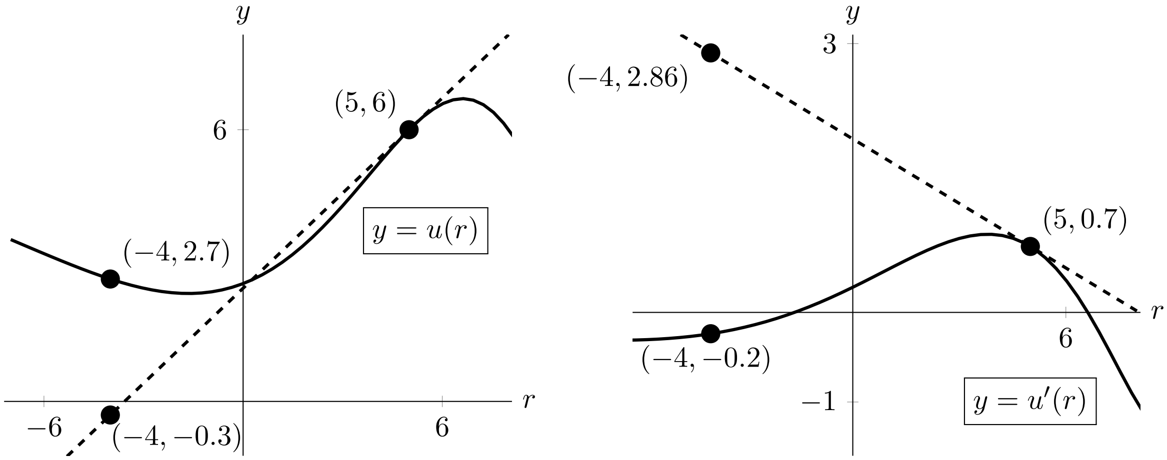
9. [9 points] The graphs of $u(r)$ and $u'(r)$ are shown below. The graphs also show tangent lines to both functions at $r = 5$.



The table below shows some values of $h(s)$ and $h'(s)$. Both h and h' are differentiable.

s	-6	-4	-2	0	2	4	6
$h(s)$	1	4	5	-1	-3	4	7
$h'(s)$	3	2	-4	-1	0	2	1

a. [5 points] Let $g(t) = u(h(t))$. Find a formula for $\ell(t)$, the local linearization of $g(t)$ near $t = -2$, and use this to approximate a solution to $g(t) = 6.14$.

Answer: $\ell(t) =$ ____________________

Answer: $g(t) = 6.14$ when $t \approx$ ____________________

b. [2 points] Write a formula for $c(r)$, the quadratic approximation of $u(r)$ at $r = 5$. (Recall that a formula for the quadratic approximation $Q(x)$ of a function $f(x)$ at $x = a$ is $Q(x) = f(a) + f'(a)(x-a) + \frac{f''(a)}{2}(x-a)^2$.)

Answer: $c(r) =$ ____

c. [2 points] Use the data provided to estimate $h''(-5)$.

Answer: $h''(-5) \approx$ ____________________