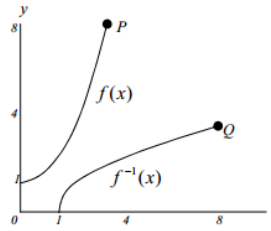
Name:_____

Ex1) The following figure shows $f(x)$ and $f^{-1}(x)$. Using the given table, find

a) $f(2)$, $f^{-1}(2)$, $f'(2)$, $(f^{-1})(2)$
b) The equation of the tangent line at the points $P(3,8)$ and $Q(8,3)$.
c) What is the relationship between the two tangent lines?

x	$f(x)$	$f'(x)$
0	1	0.7
1	2	1.4
2	4	2.8
3	8	5.5



$f(x)$	Find f'	Set $b = f(x)$ to find a Or find $f(a)$ to get b.	Find $f'(a)$	$f'(f^{-1}(b)) = \frac{1}{f'(a)}$
$\frac{1}{x+1}$		$b = \frac{1}{4}$		
e^x		$b = e$		
$4x^3 - 1$		$f(a) = 31$		
$\sqrt{3-x}$		$f(2) =$		
$4x^3 - 2x$		$f(-2)$		

$f(x)$	Find f'	Set $b = f(x)$ to find a Or find $f(a)$ to get b.	Find $f'(a)$	$f'\left(f^{-1}(b)\right) = \frac{1}{f'(a)}$
$y = \sin^{-1} x$		$f(a) = b$		
$y = \cos^{-1} x^2$		$f(0)$		
$x + \cos x$		$b = 1$		
$\arccos 4x$		$f\left(\frac{1}{5}\right)$		
$\arctan \frac{x}{3}$		$b = 3$		
$\sec x$		$x = 4$		
$y = \csc^{-1}(x^{-1})$		$a = \frac{\pi}{2}$		
$y = x^{\sin^{-1} x}$		$f(-1)$		