(Q3)

(a) Since $(f^{-1})'(f(x)) = \dfrac{1}{f'(x)}$, $(f^{-1})'(4) = \dfrac{1}{f'(-1)} = 2$.

(b) $f(0) = 1 \implies f^{-1}(1) = 0$, and $f'(0) = -1$. Thus, the tangent of f at 0 is $-x$. Since the tangent of f^{-1} is given by a reflection across the line $x = y$, the tangent of f^{-1} at 1 is also $-x$.

(c) $f(1) = 2 \implies f^{-1}(2) = 1$. Since $f'(1) = 0$, the tangent line at $f^{-1}(2)$ will be vertical, and thus the derivative will be undefined and thus not differentiable.