CALCULUS
Derivatives of inverse functions
(The Inverse Function Theorem)

OLD

0440-1. Differentiate $y = \arctan\left(e^x + \sqrt[3]{x}\right)$.
OLD

0440-2. Differentiate $F(t) = \left[e^{3t+4}\right]\left[\arcsin\left(t^2\right)\right]$.
OLD

0440-3. Differentiate $f(x) = \sin(\arctan x)$.
OLD

0440-4. Differentiate $v(s) = \operatorname{arccot}\left[\sqrt{\dfrac{2-s}{2+s}}\right]$.
OLD

OLD

0440-5. Draw a graph of a 1-1 function f
which passes through $(4, 5)$
and whose tangent line at $(4, 5)$ has slope $2/3$.

In the same picture,
draw that tangent line.

In the same picture,
draw a right triangle whose
hypotenuse is on the tangent line
and whose legs have lengths 2 and 3.

In a separate picture, reflect,
through the 45° line,
everything in the previous picture.

Let $g := f^{-1}$.

What are the values of $f(4)$ and $f'(4)$?

What are the values of $g(5)$ and $g'(5)$?