Bellwork 12/8

$$f(x) = \ln(x) + 2$$

Find $(f^{-1})'(2)$.

: : reset

Bellwork 12/8 - Solution 1

$$x = \ln[f^{-1}(x)] + 2$$

$$\implies f^{-1}(x) = e^{x-2}$$

$$\implies (f^{-1})'(x) = e^{x-2}$$

$$\therefore \boxed{(f^{-1})'(2) = 1}$$

Bellwork 12/8 - Solution 2

$$f'(x) = \frac{1}{x};\ f^{-1}(x) = e^{x-2}$$

$$(f^{-1})'(x) = \frac{1}{f'[f^{-1}(x)]}$$

$$\implies (f^{-1})'(2) = \frac{1}{f'[f^{-1}(2)]} = \frac{1}{f'(1)} = \boxed{1}$$

Exercise 1

Find the general antiderivative of f:

$$f(x) = \frac{1}{5} - \frac{2}{x}$$

Exercise 2

Find the general antiderivative of g:

$$g(t) = \frac{3t^4 - t^3 + 4}{t^4}$$

Exercise 3

Find the general antiderivative of h:

$$h(s) = \frac{1 + s^2 + s}{\sqrt{s}}$$