

INVERSE FUNCTIONS
AP CALCULUS

Answers
NAME _____

Evaluate without finding the inverse of $f(x)$. $g(x) = f^{-1}(x)$ for all of these.

1. $f(x) = x + 2$ Find $g'(5)$.

$$g'(5) = 1$$

2. $f(x) = \frac{x}{3}$ Find $g'(2)$.

$$g'(2) = 3$$

3. $f(x) = \ln x$ Find $g'(0)$.

$$g'(0) = 1$$

4. $f(x) = \sqrt{3x+4}$ Find $g'(8)$.

$$g'(8) = 16/3$$

5. $f(x) = \frac{(x-3)^2}{2}$ Find $g'(4)$.

$$g'(4) = \frac{\sqrt{2}}{4}$$

6. $f(x) = \frac{\sqrt[3]{2x+4}}{4}$ Find $g'(1)$.

$$g'(1) = 96$$

7. $f(x) = \frac{1}{1+x}$ Find $g'\left(\frac{2}{3}\right)$.

$$g'\left(\frac{2}{3}\right) = -\frac{9}{4}$$

8. $f(x) = x^2 + 4$ Find $g'(13)$.

$$g'(13) = \frac{1}{6}$$

9. Let $f(x) = x^3 - x + 2$, if h is the inverse of f , then $h'(2)$ could be

(a) $\frac{1}{26}$

(b) $\frac{1}{4}$

(c) $\frac{1}{2}$

(d) 2

(e) 26

10. Let f be a differentiable function such that $f(2) = 5$, $f(5) = 10$, $f'(2) = 4$ and $f'(5) = \frac{1}{3}$. The function g is differentiable and $g(x) = f^{-1}(x)$. What is the value of $g'(10)$?

(a) $\frac{1}{4}$

(b) $-\frac{1}{4}$

(c) $\frac{1}{3}$

(d) 3

(e) -3

11. Let f and g be functions that are differentiable everywhere. If g is the inverse of f and if $g(-4) = 6$ and $f'(6) = 3$ then $g'(-4) = ?$

(a) 3

(b) -3

(c) $\frac{1}{3}$

(d) $-\frac{1}{3}$

(e) None of these