Calculus Section 5.3 Derivative of Inverse Functions
-Determine the derivative of an inverse function

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**The Derivative of an Inverse Function**Let *f* be a function that is differentiable on an interval. If *f* has an inverse function *g*, then *g* is differentiable at any x for which , and .

**Proof:**

**Example**Let f(x) = 2x + 5. Find (f-1)’(9).

**Example)**Let. What is the value of (f -1)’(3)?

**Example)**
Values of f(x), f’(x), and f-1(x) are given in the table below. Determine (f-1)’(6).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 2 | 3 | 4 | 6 |
| f(x) | 6 | 11 | 18 | 38 |
| f’(x) | 4 | 6 | 8 | 12 |
| f-1(x) | 0 | 1 | 1.4 | 2 |