1. $f(x) = x^2 + 4$

$29 = x^2 + 4$

$25 = x^2$

$5 = x$

$f(5) = 29$ $(5, 29)$ on $f(x)$

$(29, 5)$ on $f^{-1}(x)$

$f'(x) = 2x$

$f'(5) = 10$

$(f^{-1})'(29) = \frac{1}{10}$

2. $f(x) = 2x^3 + 5x + 1$

$8 = 2x^3 + 5x + 1$

$0 = 2x^3 + 5x - 7$

$x = 1$

$f'(x) = 6x + 5$

$f'(1) = 11$

$(f^{-1})'(8) = \frac{1}{11}$

3. $\sqrt{64.9}$

$f(x) = \sqrt{x}$

$x = 64$

$\Delta x = .9$

$\frac{dy}{dx} = \frac{1}{2}x^{-1/2}$

$dy = \frac{1}{2\sqrt{x}}\,dx$

$dy = \frac{1}{2\sqrt{64}} \cdot .9$

$dy = \frac{.9}{16}$

$\sqrt{64.9} = \sqrt{64} + \frac{.9}{16}$

$= 8.056$

4. $f(x) = 2x^3 - 3$

$f'(x) = 6x^2$

$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$

$x_2 = 1 - \frac{f(1)}{f'(1)}$

$= 1 - \frac{(-1)}{6} = \frac{7}{6}$

$x_3 = x_2 - \frac{f(x_2)}{f'(x_2)}$

$x_3 = \frac{7}{6} - \frac{19/108}{49/6} = \frac{505}{441} \approx 1.145$

$x_4 = 1.145$