Quiz 13

Name: _____

Solutions given without showing work will earn a zero. Circle your answers.

Problem 1. **[3 points]** Use the properties of exponents to write the expression as a single logarithm: $5\ln x - \frac{1}{2}\ln y$

$\ln(x^5) - \ln(y^{1/2}) = \boxed{\ln\left(\frac{x^5}{y^{1/2}}\right)}$

Problem 2. **[2 points]** Write $\log_4 1024 = x$ as an exponential equation.

$4^x = 1024$

Problem 3. **[2 points]** Write $3^x = 10$ as a logarithmic equation.

$\log_3 10 = x$

Problem 4. **[3 points]** Find the inverse $f^{-1}(x)$ for $f(x) = 3x + 5$

① $y = 3x + 5$

② $x = 3y + 5$

③ $-5 \quad -5$

$\frac{x-5}{3} = \frac{3y}{3}$

$y = \frac{x-5}{3}$

④ $\boxed{f^{-1}(x) = \frac{x-5}{3}}$