

**PROFESSOR ALFRED DOLICH MATH 14 TEST 4
REVIEW**

Do the following eight questions, each worth 10 points. You may use a scientific calculator, although it is not necessary. Please make sure you show your work and clearly write your final answer.

(1) Sketch the graph of: $-\ln(x + 2) - 1$.

(2) Solve $3^{x+2} = 4^x$

(3) Solve $\log_2(x) + \log_2(x + 1) = 1$.

(4) Compute to three decimal places: $\log_7 4$.

(5) Suppose that $\log_5 z = 3$, $\log_5 w = -1$, and $\log_5 y = -6$. Compute

$$\log_5 \left(\frac{z^3 x^2}{y^6} \right)$$

(6) Write in expanded form :

$$\ln \left(\frac{x^{-3}}{y^3 z^{-8}} \right)$$

- (7) Sketch the graph of $3x^2 + y^2 = 36$. Label the vertices, the foci, and the major axis.
- (8) Find the equation of a parabola in standard position whose axis is the x-axis and which contains the point $(6, -7)$.