

KNOW
1-5
/25

Full Solution: Show ALL work to obtain full marks. *NO CALCULATOR IS PERMITTED.*

1. Express each of the following in the indicated form.

a) $\log_3(x + 1) = y$ in exponential form

b) $b^{2x} = 5$ in logarithmic form

/K2

2. Use the laws of logarithms to express each of the following in terms of $\log_b x$, $\log_b y$, and $\log_b z$.

a) $\log_b \left(\frac{xz}{y} \right)$

b) $\log_b(x^2 z^7)$

c) $\log_b(\sqrt[5]{y^3 z})$

/K5

3. Rewrite as a single logarithm:

$$\frac{1}{2}\log_b x - \log_b w - \frac{3}{4}\log_b v$$

/K3

4. Evaluate the following logarithms, if possible.

a) $\log_4 64$

b) $\log 0.00001$

c) $\log_b 1$

d) $\log_3 \left(\frac{1}{9}\right)$

e) $2^{\log_2 529}$

f) $\log_5 \sqrt[3]{125}$

g) $\log_3 54 + \log_3 \left(\frac{3}{2}\right)$

h) $\log_5 0$

i) $\log_6 40 - \log_6 10 + \log_6 9$

/K9

5. Sketch $f(x) = 2\log_2(x - 1) - 3$. Include the original/transformed table of values with the mapping rule.

/K6

