SL Indicies and Logs 2 c = calc nc = no calc

1)c Solve the equation $\log_{27} x = 1 - \log_{27}(x - 0.4)$.

2)c Given that $\log_5 x = y$, express each of the following in terms of y.

(a) $\log_5 x^2$

(b) $\log_5\left(\frac{1}{x}\right)$

(c) $\log_{25} x$

3)c Let $p = \log_{10} x$, $q = \log_{10} y$ and $r = \log_{10} z$.

Write the expression $\log_{10}\left(\frac{x}{y^2\sqrt{z}}\right)$ in terms of p, q and r.

4)c Write each of the following in its simplest form

(a) $e^{\ln x}$;

(b) $e^{(\ln x + \ln y)}$;

(c) $\ln(e^{x+y})^2$.

5)c Let $a = \log x$, $b = \log y$, and $c = \log z$.

Write $\log\left(\frac{x^2\sqrt{y}}{z^3}\right)$ in terms of a, b and c.

6)c (a) Given that $\log_3 x - \log_3(x-5) = \log_3 A$, express A in terms of x.

(b) Hence or otherwise, solve the equation $\log_3 x - \log_3(x-5) = 1$.

7)c (a) Let $\log_c 3 = p$ and $\log_c 5 = q$. Find an expression in terms of p and q for

(i) $\log_c 15$;

(ii) $\log_c 25$.

(b) Find the value of d if $\log_d 6 = \frac{1}{2}$.