Logarithmic_Functions:

1. Evaluate $\log_5 2 + \log_5 50 - \log_5 4$ *(3)*

2. Find x if $4\log_x 6 - 2\log_x 4 = 1$ *(3)*

3. Solve the equation $\log_4(5-x) - \log_4(3-x) = 2$, $x < 3$ *(4)*

4. Two variables x and y satisfy the equation $y = 3 \times 4^x$.

(a) Find the value of a if $(a, 6)$ lies on the graph with equation $y = 3 \times 4^x$. *(1)*

(b) If $(-\frac{1}{2}, b)$ also lies on the graph, find b. *(1)*

(c) A graph is drawn of $\log_{10} y$ against x. Show its equation will be of the form $\log_{10} y = Px + Q$ and state the gradient of this line. *(4)*

5. Given $x = \log_5 3 + \log_5 4$, find algebraically the value of x. *(4)*

TOTAL (20)