Higher Maths TMA Logarithms

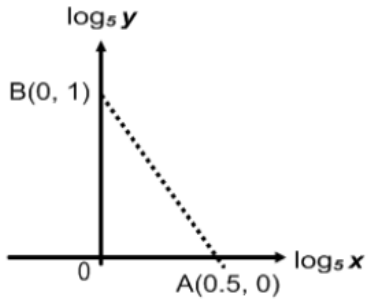
1) Evaluate $\log_5 2 + \log_5 50 - \log_5 4$

2) Solve $\log_4(5 - x) - \log_4(3 - x) = 2, \quad x < 3.$

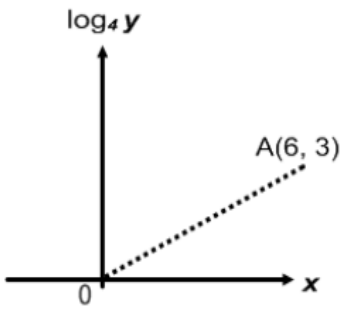
3) Solve each of the following equations for x, rounding your answers to two decimal places.

$(a) \quad 7^x = 24 \qquad (b) \quad 3^{-2x} = \frac{1}{50}$

4) The graph represents the law $y = kx^n$.
Find the values of k and n.



5) Two variables x and y are connected by the law $y = a^x$.
Find the value of a.



6) The rate of decomposition of an acid in a solution obeys the law $C = 4e^{-0.025t}$, where C is the concentration in millilitres of acid left after t minutes.

(a) What is the intial concentration of acid ?

(b) Determine how long it takes for the concentration to reach 3ml , giving your answer to the nearest second.

(c) How long does it take to reduce to *half* its original concentration ?