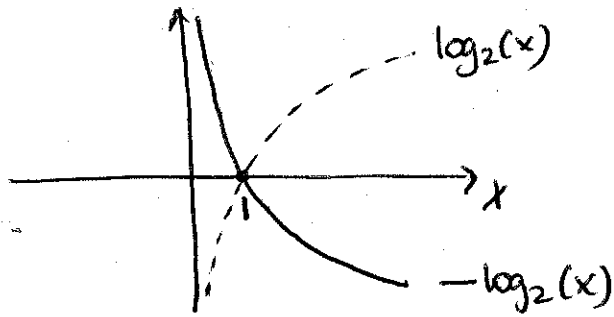


EXTRA QUIZ 1 ANSWERS

[20] (a) Sketch $-\log_2(x)$



[10] if plot $\log_2(x)$ instead of $-\log_2(x)$

[20] (b) Simplify $\frac{\ln(2^{x+1})}{\ln(2^{2x+1})}$

$$\frac{\ln(2^{x+1})}{\ln(2^{2x+1})} = \frac{(x+1)\cancel{\ln 2}}{(2x+1)\cancel{\ln 2}} = \frac{x+1}{2x+1} \quad (\text{No partial})$$

[10] (c) What is $\ln(e^{x-2})$? $\ln(e^{x-2}) = x-2$ (No partial)

[20] (d) What is the inverse of 2^{2x} ?

$$y = 2^{2x} \Rightarrow \ln y = \ln(2^{2x}) = 2x \ln 2$$

$$\Rightarrow x = \frac{\ln y}{2 \ln 2} = \frac{1}{2} \log_2(y)$$

both ok

[5] algebra error

$$\Rightarrow f^{-1}(x) = \frac{\ln y}{2 \ln 2} = \frac{1}{2} \log_2(y)$$

{ [2] if not in form $f^{-1}(x) = \dots$

[10] (e) $\ln(x+y) = \ln x \ln y$ FALSE (No partial)

[20] (f) Solve $5^x = 3^{2x-1}$

$$\ln(5^x) = \ln(3^{2x-1}) \Rightarrow x \ln 5 = (2x-1) \ln 3$$

[5] algebra error

$$\Rightarrow x \ln 5 - 2x \ln 3 = -\ln 3 \Rightarrow x(\ln 5 - 2 \ln 3) = -\ln 3$$

$$\Rightarrow x = -\ln 3 / (\ln 5 - 2 \ln 3)$$