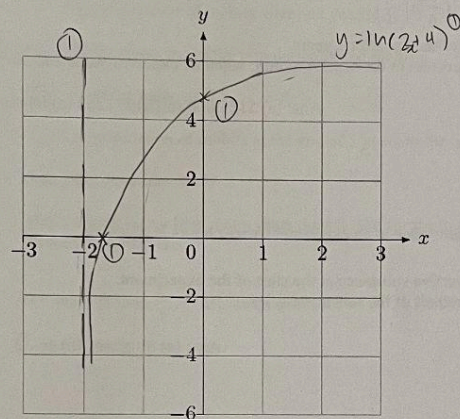**28. 2016/EOY/P2/Q6(Modified) [GDC is allowed]**

Let $f(x) = \ln(2x+4) + 3$ for $-2 < x < 3$.

(a) For the graph of f,
(i) find the x- intercept
(ii) find the y- intercept
(b) Hence, sketch the graph of f

$y = \ln(2x+4)$

Ans: (a)(i) $x = -1.98$ (ii) $y = 4.39$

29. 2013/CT/P2/Q6 [GDC is allowed]

A hot chemical was left to cool in the science laboratory. Its temperature, T is given

by the formulae $T = 50 + 16e^{-kt}$ where k is a constant and t is the number of hours after

the chemical has been placed there.

(a) Given that the temperature of the chemical is $60°$ after 1 hour, find the value of k.

Ans: $k = 0.470$ (3sf)

(b) Using your value of k, find the number of hours needed for the chemical to cool to

at least $54°$. Give your answer to the nearest hour.

Ans: $t = 2.95 \approx 3$ hours