Facit till dugga 3 a) och 3 b) 20141211

Dugga 3a)

1. (a) sann
   (b) sann
   (c) falsk
   (d) sann
2. (a) $2k$
   (b) $y = \dfrac{1}{C - \ln x}$
3. $$\begin{aligned} f(x) &= 3x^3 - 2x^2 + 1 \Longrightarrow f(1) = 2 \\ f'(x) &= 9x^2 - 4x \Longrightarrow f'(1) = 5 \\ f''(x) &= 18x - 4 \Longrightarrow f''(1) = 14 \end{aligned}$$
   $$\Rightarrow p_2(x) = \frac{14}{2!}(x-1)^2 + 5(x-1) + 14 = 7x^2 - 9x + 4$$

Dugga 3b)

1. (a) sann
   (b) sann
   (c) sann
   (d) falsk
2. (a) $2k + 1$
   (b) $y = \dfrac{1}{C + \ln x}$
3. $$\begin{aligned} f(x) &= 4x^3 - 3x^2 - x \Longrightarrow f(1) = 0 \\ f'(x) &= 12x^2 - 6x - 1 \Longrightarrow f'(1) = 5 \\ f''(x) &= 24x - 6 \Longrightarrow f''(1) = 18 \end{aligned}$$
   $$\Rightarrow p_2(x) = \frac{18}{2!}(x-1)^2 + 5(x-1) + 0 = 9x^2 - 13x + 4$$