Ex 1.1.3

a) $\int 2e^x\,dx = 2\int e^x\,dx = \underline{2e^x + C}$

b) $\int e^{2x}\,dx = \frac{1}{2}\int e^{2x}\cdot 2\,dx = \underline{\frac{1}{2}e^{2x} + C}$

$u = 2x$
$u' = 2$

c) $\int (2 - e^x)\,dx = \underline{2x - e^x + C}$

d) $\int e^{2-x}\,dx = -\int e^{2-x}\cdot(-1)\,dx = \underline{-e^{2-x} + C}$

$u = 2 - x$
$u' = -1$

Ex 1.1.4

a) $\int_1^2 e^x dx = e^x \Big|_1^2 = e^2 - e^1 = \underline{e^2 - e}$

b) $\int_1^2 e^{3x-7} dx = \frac{1}{3}\int_1^2 e^{3x-7} \cdot 3dx = \frac{1}{3} e^{3x-7} \Big|_1^2$

$u = 3x-7$
$u' = 3$

$= \frac{1}{3}\left(e^{-1} - e^{-4}\right) = \underline{\frac{1}{3}\left(\frac{1}{e} - \frac{1}{e^4}\right)} = \frac{1}{3}\frac{e^3-1}{e^4}$

$= \underline{\frac{e^3-1}{3e^4}}$

c) $\int_0^2 x e^{x^2} dx = \frac{1}{2}\int_0^2 2x\, e^{x^2} dx = \frac{1}{2} e^{x^2} \Big|_0^2$

$u = x^2$
$u' = 2x$

$= \frac{1}{2}\left(e^4 - e^0\right) = \underline{\frac{1}{2}\left(e^4 - 1\right)} = \underline{\frac{e^4-1}{2}}$

d) $\int_1^2 \frac{1}{\sqrt{x} e^{\sqrt{x}}} dx = -2\int_1^2 -\frac{1}{2}\frac{1}{\sqrt{x}} \cdot e^{-\sqrt{x}} dx = -2e^{-\sqrt{x}} \Big|_1^2$

si $u = \sqrt{x}$
$u' = \frac{1}{2\sqrt{x}}$

si $u = -\sqrt{x}$
$u' = -\frac{1}{2\sqrt{x}} = -\frac{1}{2}\cdot\frac{1}{\sqrt{x}}$

$= -2e^{-\sqrt{2}} + 2e^{-1}$

$= \frac{-2}{e^{\sqrt{2}}} + \frac{2}{e} = \underline{-2\left(\frac{1}{e^{\sqrt{2}}} - \frac{1}{e}\right)}$