Esim.
$$\int \frac{e^{3x}+e^x}{e^x}\,dx = \int \frac{e^{3x}}{e^x}+\frac{e^x}{e^x}\,dx = \int (e^{2x}+1)\,dx$$
$$= \int e^{2x}\,dx + \int 1\,dx = \frac{1}{2}\int 2e^{2x}\,dx + x$$
$$= \frac{1}{2}e^{2x} + x + C$$

10.17 a) $$\int \frac{\overbrace{\cos x}^{f'(x)}}{\underbrace{\sin x}_{f(x)}}\,dx = \ln|\underbrace{\sin x}_{>0 \text{ kun } 0<x<\frac{\pi}{2}}| + C = \underline{\ln(\sin x) + C \;, 0 < x < \frac{\pi}{2}}$$

b) $$\int \frac{\sin x}{4\cos x}\,dx = \frac{1}{4}\int \frac{\sin x}{\cos x}\,dx = -\frac{1}{4}\int \frac{\overbrace{-\sin x}^{f'(x)}}{\underbrace{\cos x}_{f(x)}}\,dx = -\frac{1}{4}\ln|\underbrace{\cos x}_{>0}| + C$$
$$= \underline{-\frac{1}{4}\ln(\cos x) + C}$$

c) $$\int \frac{2\cos x}{\sin^2 x}\,dx = 2\int \underbrace{\cos x}_{f'(x)}\,(\underbrace{\sin x}_{f(x)})^{-2}\,dx = 2\cdot\frac{1}{-1}(\sin x)^{-1} + C$$
$$= \underline{-\frac{2}{\sin x} + C}$$

10.18 a) $$\int_1^e \frac{x-1}{x}\,dx = \int_1^e \left(\frac{x}{x}-\frac{1}{x}\right)dx = \int_1^e \left(1-\frac{1}{x}\right)dx = \Big/_1^e\, x - \ln|x|$$
$$= (e - \underbrace{\ln e}_{=1}) - (1 - \underbrace{\ln 1}_{=0}) = \underline{e-2}$$

b) $$\int_0^1 \frac{\overbrace{e^x}^{f'(x)}}{\underbrace{e^x+2}_{f(x)}}\,dx = \Big/_0^1 \ln|e^x+2| = \ln(e^1+2) - \ln(\underbrace{e^0}_{=1}+2)$$
$$= \underline{\ln(e+2) - \ln 3}$$

c) $$\int_0^1 \frac{e^x+2}{e^x}\,dx = \int_0^1 \left(\frac{e^x}{e^x}+\frac{2}{e^x}\right)dx = \int_0^1 (1+2e^{-x})\,dx$$
$$= \Big/_0^1 (x - 2e^{-x}) = (1-2e^{-1}) - (0 - 2\underbrace{e^0}_{=1})$$
$$= \underline{3 - 2e^{-1}}$$

10.19 a) $$\int \frac{1}{x\ln x}\,dx = \int \frac{1}{x}\cdot\frac{1}{\ln x}\,dx = \int \frac{\overbrace{\frac{1}{x}}^{f'(x)}}{\underbrace{\ln x}_{f(x)}}\,dx = \ln|\underbrace{\ln x}_{>0 \text{ kun } x>1}| + C = \underline{\ln(\ln x) + C}$$

b) $$\int \frac{\ln x}{x}\,dx = \int \underbrace{\frac{1}{x}}_{f'(x)}\cdot(\underbrace{\ln x}_{f(x)})^1\,dx = \underline{\frac{1}{2}(\ln x)^2 + C}$$