

b.

$$f(x) = \frac{4}{x(1+4\ln x)^2} dx.$$

$$u = 4\ln x + 1$$

$$\frac{du}{dx} = \frac{4}{x}$$

$$dx = \frac{x du}{4}$$

$$= \int \frac{1}{u^2} \quad \text{So} = -\frac{1}{u}$$

$$= -\frac{1}{4\ln x + 1} + C.$$

$$y = \frac{1}{u^2} \text{ or } u^{-2}$$

$$\frac{dy}{du} = -u^{-1}$$

$$= -u^{-1} \text{ or }$$

$$-\frac{1}{u}$$

$$C1 \int_{\ln 2}^{\ln 5}$$

$$\frac{3e^{2x}}{\sqrt{e^x - 1}} dx$$

$$= 3 \int_{\ln 2}^{\ln 5} \frac{e^{2x}}{\sqrt{e^x - 1}}$$

$$u = e^x - 1$$

$$\frac{du}{dx} = e^x$$

$$dx = e^{-x} du.$$

$$= 3 \int \frac{u+1}{\sqrt{u}} du. = \int \frac{e^x + 1}{\sqrt{e^x - 1}} du.$$

$$\int \sqrt{u} du = \frac{u^{3/2}}{3/2} = \frac{2u^{3/2}}{3}$$

$$e^{2x} = (u+1)^2$$