Given $y = e^{\cos x} \sin^2 x$

(a) Find $\dfrac{dy}{dx}$. **3**

Given $f(x) = \dfrac{x^2 - 1}{x^2 + 1}$

(b) Obtain $f'(x)$ and simplify your answer. **3**

Answers:

(a) $e^{\cos x}.2\sin x \cos x + \sin^2 x.e^{\cos x}\left(-\sin x\right)$

(b) $\dfrac{4x}{\left(x^2 + 1\right)^2}$