

$$\begin{aligned}
 (a) \quad f'(x) &= \cos\left(\frac{x^{-3}}{e^{-x}}\right) \left(\frac{x^{-3}}{e^{-x}}\right)' \\
 &= \cos\left(\frac{x^{-3}}{e^{-x}}\right) \left(\frac{e^{-x}(x^{-3})' - x^{-3}(e^{-x})'}{(e^{-x})^2}\right) \\
 &= \boxed{\cos\left(\frac{x^{-3}}{e^{-x}}\right) \left[\frac{e^{-x}(-3x^{-4}) - x^{-3}e^{-x}(-1)}{(e^{-x})^2}\right]}
 \end{aligned}$$

$$\begin{aligned}
 (b) \quad g'(x) &= \frac{1}{2} \left(\frac{x^2+2}{x^2+4}\right)^{-1/2} \left(\frac{x^2+2}{x^2+4}\right)' \\
 &= \boxed{\frac{1}{2} \left(\frac{x^2+2}{x^2+4}\right)^{-1/2} \left(\frac{(x^2+4)(2x) - (x^2+2)(2x)}{(x^2+4)^2}\right)}
 \end{aligned}$$

$$\begin{aligned}
 (c) \quad h'(x) &= 8(x + \cos^2 x)^7 (x + \cos^2 x)' \\
 &= 8(x + \cos^2 x)^7 (1 + 2\cos x (\cos x)') \\
 &= \boxed{8(x + \cos^2 x)^7 (1 + 2\cos x (-\sin x))}
 \end{aligned}$$