Find an equation of the tangent line to the graph of h(x) = $e^x \sec x$ at x = $\frac{\pi}{4}$.

$h'(x) = e^x \sec x \tan x + e^x \sec x$

$h'(\pi/4) = e^{\pi/4} \cdot \sqrt{2} \cdot 1 + e^{\pi/4} \cdot \sqrt{2} = 2\sqrt{2}\, e^{\pi/4} = 6.203$

$h(\pi/4) = e^{\pi/4} \cdot \sqrt{2} = 3.101$

$y - 3.101 = 6.203\,(x - \pi/4)$

answer: ____________________

Find $g'(x)$ if g(x) = $\frac{3x^2-7}{e^x+\sqrt{x}}$

(it's OK to leave fractional exponents, even if they are negative, in your answer)

$g'(x) = \frac{(e^x + x^{1/2})(6x) - (3x^2-7)(e^x + \frac{1}{2}x^{-1/2})}{(e^x+\sqrt{x})^2}$

(OK to stop after first step)

$g'(x)$=____________________

Given that y = $(x^3 - x^2 + 3x - 2)(3x - e^x)$, find $\frac{dy}{dx}$. (It's OK to not simplify your answer – just show the first step where you use Calculus)

$\frac{dy}{dx} = (3x^2 - 2x + 3)(3x - e^x) + (3 - e^x)(x^3 - x^2 + 3x - 2)$

(OK to stop)

answer: ____________________