$y = e^x \qquad y' = e^x$

$y = e^u \qquad y' = e^u \cdot u'$

$y = e^{x^2} \qquad y' = e^{x^2} \cdot 2x$

$y = e^{\sin x} \qquad y' = e^{\sin x} \cos x$

$y = e^{-3/x} \qquad y' = e^{-3/x} 3x^{-2}$

$e^{-3x^{-1}} \qquad = \dfrac{3e^{-3/x}}{x^2}$

$y = e^x x^2$ $\quad y' = e^x x^2 + 2x e^x$

$f \; g$ $\quad f' \; g + g' \; f$

$y = e^{3x} x^3$

$y' = e^{3x} 3x^3 + 3x^2 e^{3x}$

$y = \frac{(f)\, e^{2x}}{(g)\, e^x + x}$ $\quad y' = \frac{f' \quad g \quad g' \quad f}{2e^{2x}(e^x + x) - (e^x + 1)e^{2x}}$

$= \frac{2e^{3x} + 2e^{2x}x - e^{3x} - e^{2x}}{(e^x + x)^2}$ $\quad g^2$

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

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$$g(t) = (e^{-t} + e^{t})^3$$

$$g'(t) = 3(e^{-t} + e^{t})^2(-e^{-t} + e^{t})$$

#50) $y = e^{-2x+x^2}$

$$y' = e^{-2x+x^2}(-2+2x) \qquad (2,1)$$

$$m = e^{-4+4}(-2+4)$$

$$= e^0(2) = 1(2) = 2$$

$$y - 1 = 2(x-2)$$

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