

$$\begin{aligned} 7 \quad y &= x e^x \\ y' &= (1+x) e^x \\ y'' &= (2+x) e^x \end{aligned}$$

$$\begin{aligned} d) \quad \lim_{x \rightarrow -\infty} x e^x \\ &= \underline{\underline{0}}. \end{aligned}$$

$$b) \left(-1, -\frac{1}{e}\right) \text{ max tp.}$$

$$c) \left(-2, -\frac{2}{e^2}\right) \text{ ip}$$

12/ $y = mx$ tangent to $y = \frac{e^x}{x}$

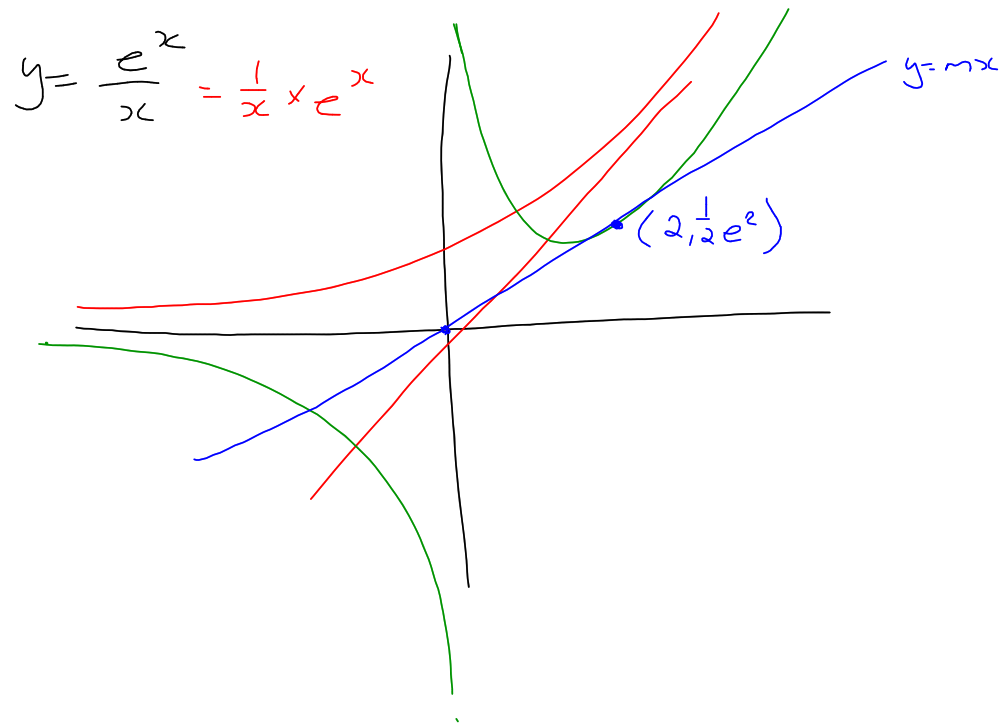
$$A(2, \frac{1}{2}e^2)$$

$$m_{OA} = \frac{\frac{1}{2}e^2}{2}$$
$$= \underline{\underline{\frac{1}{4}e^2}}$$

$$y' = \frac{xe^x - e^x}{x^2}$$

$$\text{when } x=2, y' = \frac{2e^2 - e^2}{4}$$

$$= \underline{\underline{\frac{1}{4}e^2}}$$



14 a) $y = e - x^2 e^x$

$$y' = -x e^x (2 + x)$$

x intercept at 1.

b) $(-2, e - 4e^{-2})$
min

$(0, e)$
max

c) $\lim_{x \rightarrow \infty} y =$
 $y \rightarrow \infty$

