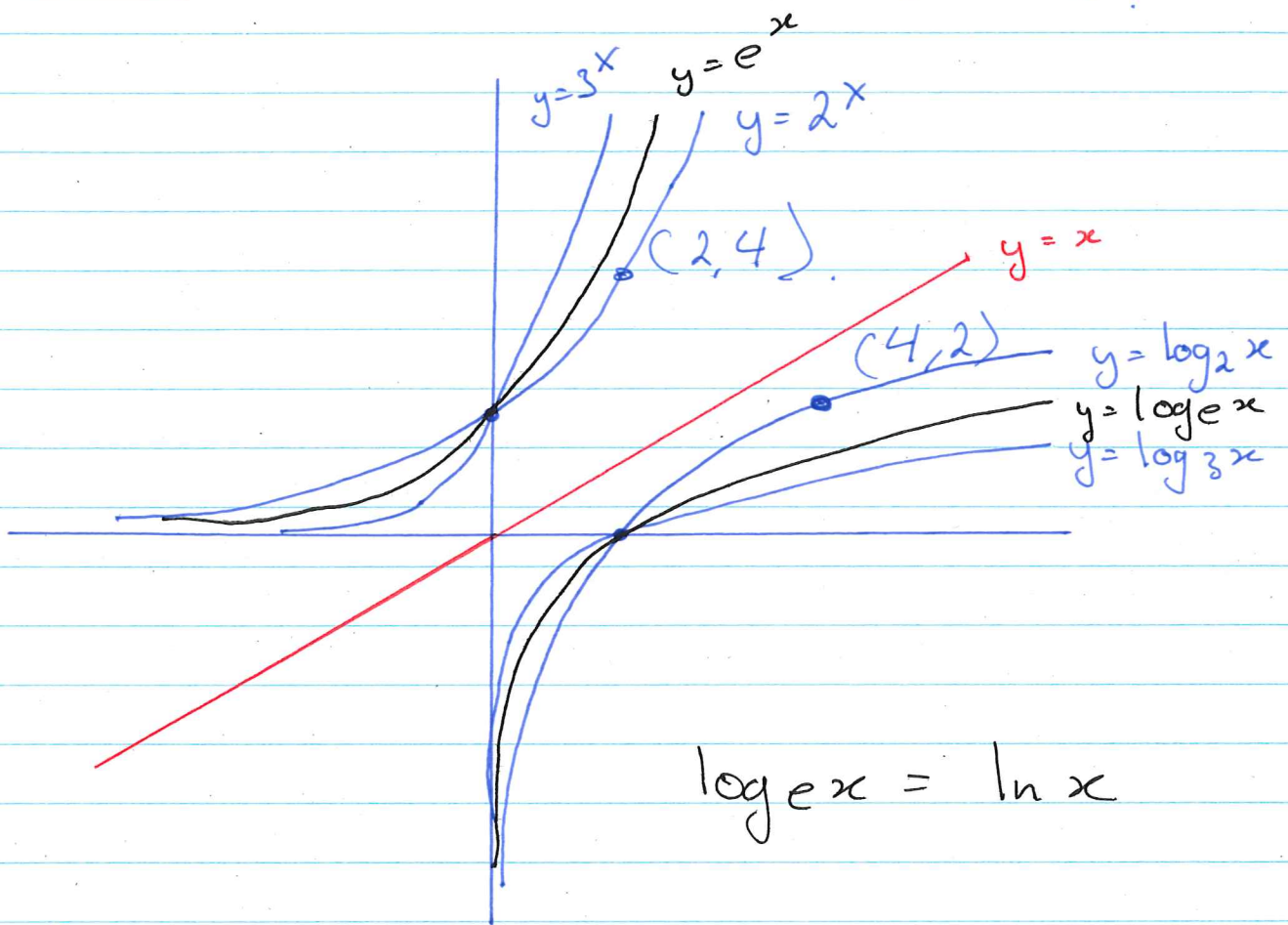


Sept-25.

①

Logarithms

$$e = 2.71\dots$$



Log Rules:

- 1) $\log_b(xy) = \log_b(x) + \log_b(y)$
- 2) $\log_b(x/y) = \log_b(x) - \log_b(y)$
- 3) $\log_b(x^p) = p \log_b(x)$

(2)

Solve for x .

Examples:

$$e^{2x} = 4$$

$$\ln(e^{2x}) = \ln(4)$$

$$2x = \ln 4$$

$$x = \frac{\ln 4}{2} \quad \text{~~ln 2~~$$

$$= \frac{\ln 2^2}{2} = \frac{2 \ln 2}{2}$$

rule 3. $= \ln 2 //$

$$\left(\begin{array}{l} 5^{2x} = 4 \\ \log_5(5^{2x}) = \log_5 4 \\ 2x = \log_5 4 \end{array} \right)$$

$$\log_2(x+3) = 4$$

$$2 \log_2(x+3) = 2^4$$

$$x+3 = 16$$

$$x = 13$$

$$\log_3(x) = x$$

③

~~OR~~

$$4 = y = \log_2(x+4)$$

$$2^y = x+4$$

$$2^4 = x+4$$

$$16 = x+4$$

$$13 = x$$

