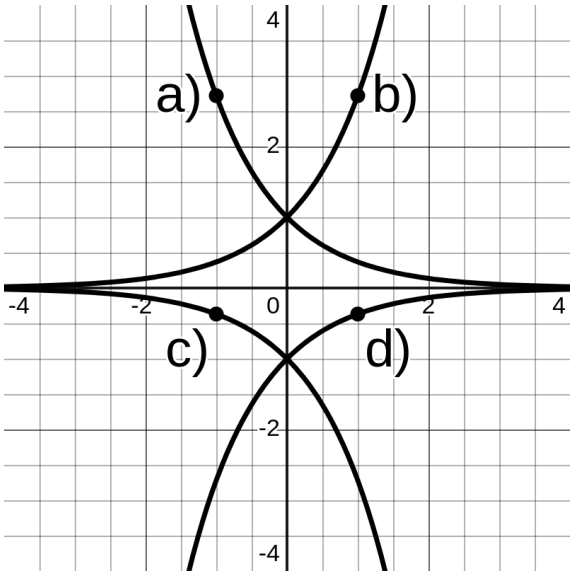
Review session pt 2

Fco. Javier Vázquez Tavares

Excersice 1 Identify from the follwoing graphic the functions that match with the following descriptions:



- Exponential growth
- Exponential decay
- The function goes to minus infinity when the domain goes to infinity ($f(x) \to -\infty$ when $x \to \infty$)
- The function goes to minus infinity when the domain goes to -infinity ($f(x) \to -\infty$ when $x \to -\infty$)

Excersice 2 Use the properties of logarithms to expand the following expression,

$$\log\left[\frac{(x+7)^5}{\sqrt[3]{x^4}}\right].$$

Exercise 3 Modify the exponential function ($e^x = \exp[x]$) to move it 3 units to the left and 5 units up.

Exercise 4 Modify the logarithmic function ($\log_a[x]$) to move it 4 units to the right and 9 untis down.

Exercise 5 Write the Lograithm law of a quotient.

Exercise 6 Use the laws of logarithms to expand the following expression,

$$\log_e\left(\frac{(xy)^3}{z^6}\right) = \ln\left(\frac{(xy)^3}{z^6}\right)$$

Exercise 7 Determine the horizontal asymptote of the following function,

$$f(x) = e^{3x}(\exp[3x] - 1) - 10$$

Exercise 8 Find the intersection point between the line $f(x) = e$ and the following function,

$$f(x) = \exp[2x] - 6$$

Exercise 9 Solve the equation

$$\log\left(x^2 + 1\right) = \log(x - 2) + \log(x + 3)$$