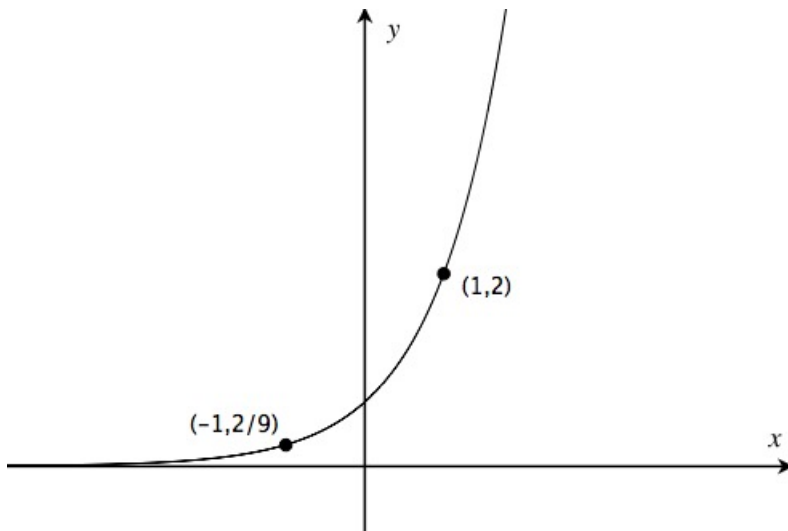
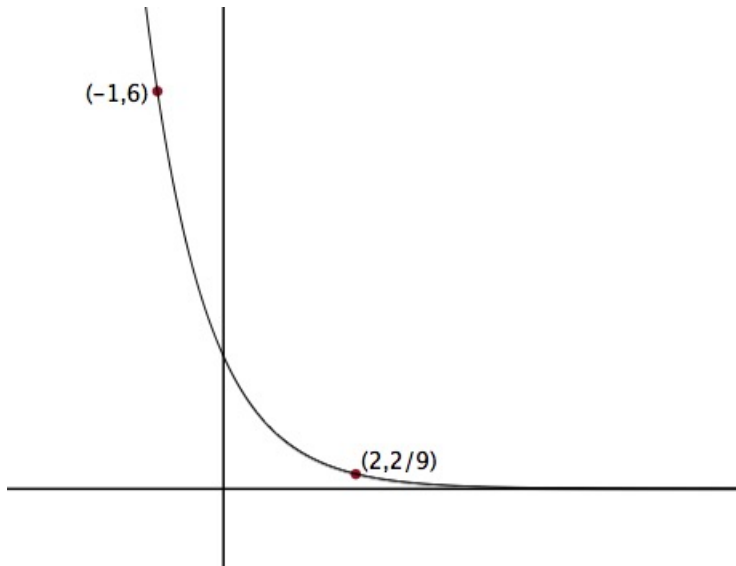


1. Simplify:  $(x^3)^2(3x^{-2})^3$
2. Simplify:  $\frac{x^{4n+1}x^{2n+2}}{x^{3n-2}x^{6n+5}}$
3. Sketch the graph of the function  $y = 2^{-x} + 2$
4. Sketch the graph of the function  $y = \left(\frac{1}{3}\right)^{2-x}$
5. Find the domain of the function  $f(x) = \frac{\sqrt{4 - 2^{x-3}}}{e^{4-x^2} - 1}$
6. Find the domain of the function  $f(x) = \frac{\sin(e^x)}{e^{\frac{1}{x^2+1}}}$
7. Find the exponential function  $f(x) = b \cdot a^x$  with the given graph:



8. Find the exponential function  $f(x) = b \cdot a^x$  with the given graph:



9. If  $f(x) = \left(\frac{1}{2}\right)^x$ , show that

$$\frac{f(x+h) - f(x)}{h} = \frac{1}{2^{x+h}} \left( \frac{1 - 2^h}{h} \right)$$

10. Lex Luthor has a sample of 100kg of the radioactive substance Kryptonite. After 10 years, it has reduced to 80kg. Find the half-life of Kryptonite.