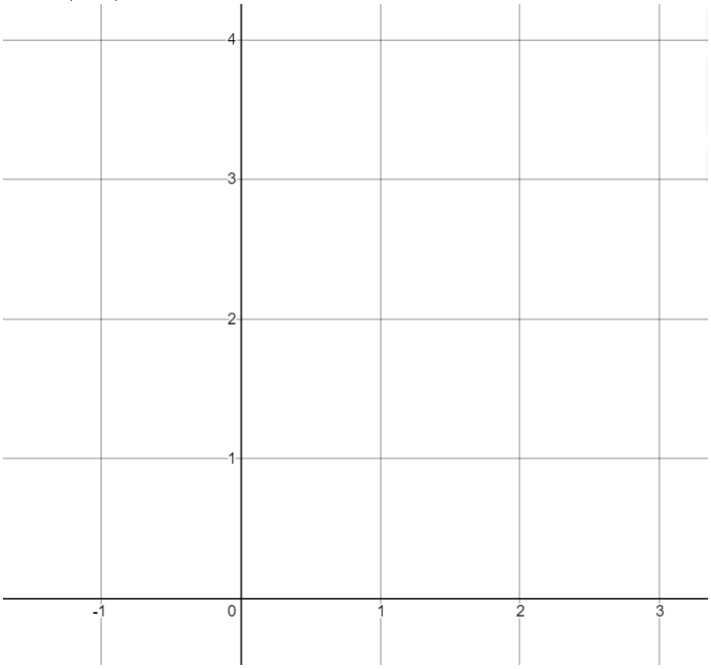
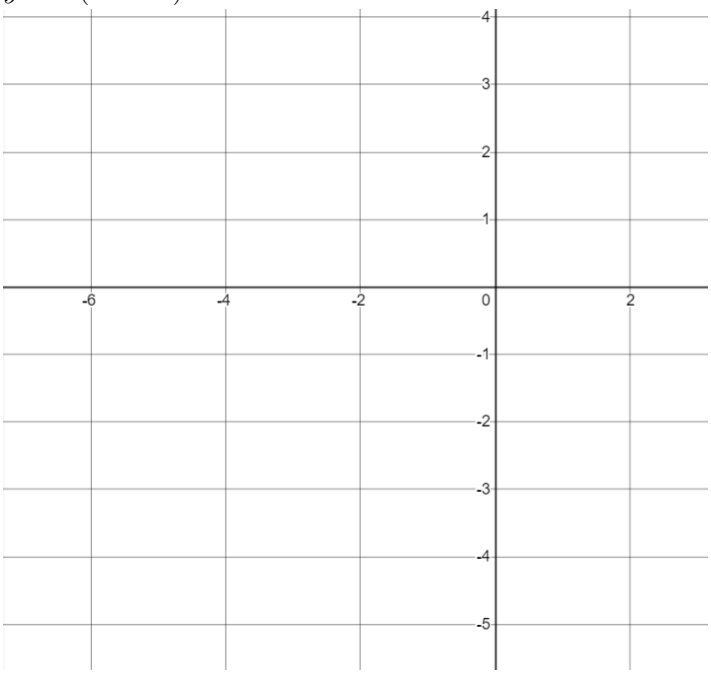
Exercise 1 Make a rough sketch of the graph of the function. Find the domain, the range, and the equation of the horizontal asymptote.

(a) $y = (0.5)^{x-1}$



(b) $y = 2(1 - e^x)$



Exercise 2 An isotope of sodium, ^{24}Na, has a half-life of 15 hours. A sample of this isotope has mass 2 g.

(a) Find the amount remaining after 60 hours.

(b) Find the amount remaining after t hours.

(c) Estimate the amount remaining after 4 days.

Exercise 3 After alcohol is fully absorbed into the body, it is metabolized with a half-life of about 1.5 hours. Suppose you have had three alcoholic drinks and an hour later, at midnight, your blood alcohol concentration (BAC) is 0.6 mg/mL. Find an exponential decay model for your BAC t hours after midnight.

Exercise 4 Suppose you are offered a job that lasts one month (30 days). Which of the following methods of payment do you prefer?

I. \$100,000 each day.
II. One cent on the first day of the month, two cents on the second day, four cents on the third day, and, in general, 2^{n-1} cents on the nth day.