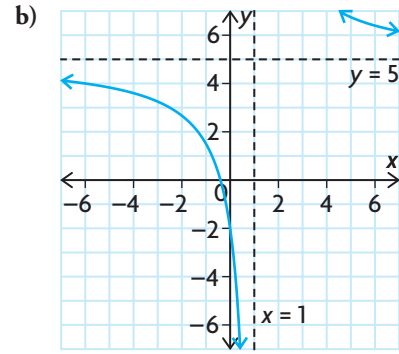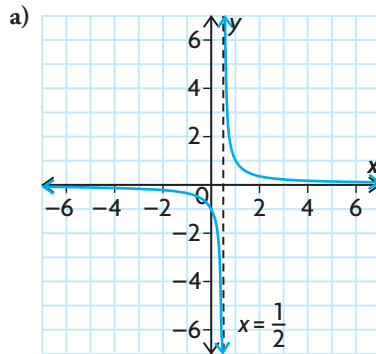1. Match each graph with the equation of its corresponding function.

a)

b)

A $y = \dfrac{5x + 2}{x - 1}$

B $y = \dfrac{1}{2x - 1}$

2. Suppose that n is a constant and that $f(x)$ is a linear or quadratic function defined when $x = n$. Complete the following sentences.

a) If $f(n)$ is large, then $\dfrac{1}{f(n)}$ is....

b) If $f(n)$ is small, then $\dfrac{1}{f(n)}$ is....

c) If $f(n) = 0$, then $\dfrac{1}{f(n)}$ is....

d) If $f(n)$ is positive, then $\dfrac{1}{f(n)}$ is....

3. Without using graphing technology, sketch the graph of $y = \dfrac{2x + 6}{x - 2}$.

4. A company purchases x kilograms of steel for $2249.52. The company processes the steel and turns it into parts that can be used in other factories. After this process, the total mass of the steel has dropped by 25 kg (due to trimmings, scrap, and so on), but the value of the steel has increased to $10 838.52. The company has made a profit of $2/kg. What was the original mass of the steel? What is the original cost per kilogram?

5. Select a strategy to solve each of the following.

a) $\dfrac{-x}{x - 1} = \dfrac{-3}{x + 7}$

b) $\dfrac{2}{x + 5} > \dfrac{3x}{x + 10}$

6. If you are given the equation of a rational function of the form $f(x) = \dfrac{ax + b}{cx + d}$, explain

a) how you can determine the equations of all vertical and horizontal asymptotes without graphing the function

b) when this type of function would have a hole instead of a vertical asymptote