2. Find the domain of the function

\[ \frac{x + 7}{x^2 - 256} \]

The denominator can not be zero. That is \( x^2 - 256 \neq 0 \). So, \( x \neq 16 \) and \( x \neq -16 \). The domain is all the real numbers but 16 and -16. With interval notation

\[ ( -\infty, -16 ) \cup ( -16, 16 ) \cup ( 16, \infty ) \]

10. Algebraically find the inverse function of \( f(x) = 2x + 6 \).

\[ y = 2x + 6 \]

(1) Solve the equation for \( x \) (Express \( x \) in terms of \( y \))

\[ y - 6 = 2x \]

\[ \frac{y - 6}{2} = x \]

(2) Interchange the variable \( x \) and \( y \).

\[ \frac{x - 6}{2} = y \]

\[ \frac{x - 6}{2} = f^{-1}(x) \]