1. Without a calculator, match the functions (a)–(f) with their graphs in (i)–(vi) by finding the zeros, asymptotes, and end behavior for each function.

(a) \( y = \frac{-1}{(x - 5)^2} - 1 \)  
(b) \( y = \frac{x - 2}{(x + 1)(x - 3)} \)

(c) \( y = \frac{2x + 4}{x - 1} \)  
(d) \( y = \frac{1}{x + 1} + \frac{1}{x - 3} \)

(e) \( y = \frac{1 - x^2}{x - 2} \)  
(f) \( y = \frac{1 - 4x}{2x + 2} \)
Find the equation of the following rational functions:

2. \[ y = \frac{a(x+2)(x-3)}{(x+1)(x-2)} \]

3. \[ y = \frac{b(x^2)(x-3)}{(x+1)(x-2)} \]

4. The graph of \( y = g(x) \) has two vertical asymptotes: one at \( x = -2 \) and one at \( x = 3 \). It has a horizontal asymptote of \( y = 0 \). The graph of \( g \) crosses the \( x \)-axis once, at \( x = 5 \).

\[ g(x) = \frac{a(x-5)}{(x+2)(x-3)} \]

What is the "a" value?