1. Let

\[ f(x) = \begin{cases} 
(x^2 - 6x + 5)/(x - 1) & \text{if } x \neq 1, \\
\infty & \text{if } x = 1. 
\end{cases} \]

Find the value of \( c \) for which \( f \) will be continuous at \( x = 1 \).

By definition of continuity, \( f \) is continuous at \( x = 1 \) if

\[ \lim_{x \to 1} f(x) = f(1) = c \]

\[ \lim_{x \to 1} (x-5)(x-1) = \lim_{x \to 1} x-5 = -4 \]

\[ \Rightarrow c = -4 \]

2. a. Using the definition of the derivative, find the derivative of the function \( f(x) = x^2 - 1 \) at \( x = 2 \).

b. Find the equation of the tangent line to the graph of the function \( f(x) = x^2 - 1 \) at the point \((2, 3)\).

2a. \( f'(2) = \lim_{h \to 0} \frac{f(2+h) - f(2)}{h} = \lim_{h \to 0} \frac{(2+h)^2 - 1}{h} = \lim_{h \to 0} \frac{4h + 4h^2}{h} = \lim_{h \to 0} (4 + 4h) = 4 \)

2b. By using part (a) we get:

\[ y - 3 = 4(x - 2) \Rightarrow y = 4x - 5 \]