

Limits Values and Rates



Name: _____ Date: _____

Use the material to work through each task. Show the requested response.

Approach and value

For x not equal to 1, $f(x) = (x^2 - 1)/(x - 1)$ equals $x + 1$. As x approaches 1, $f(x)$ approaches 2, even if $f(1)$ is undefined.

1. Simplify $f(x)$ and state the excluded x value.

2. Find the limit of $f(x)$ as x approaches 1.

3. Is $f(1)$ defined by the original formula?

4. Find the limit of x^2 as x approaches 3.

5. Find the average rate of change of x^2 from $x = 2$ to $x = 3$.

6. Explain why an undefined function value does not always mean the limit is absent.
