

Limits Values and Rates



Use the matching sheet ID when checking answers.

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

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

Answer: $x + 1$; $x \neq 1$

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

Answer: 2

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

Answer: no

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

Answer: 9

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

Answer: 5

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

Look for:

- Distinguishes approach from value at the point.

One possible response: A limit concerns nearby values. Here nearby values approach 2 although $f(1)$ is undefined.

Open responses use criteria and an illustrative response. Other well-supported responses can be acceptable.