

Topic 5: Continuity

Find all discontinuities of $f(x)$.

1. $f(x) = \frac{x-1}{x^2-1}$

2. $f(x) = \frac{4x}{x^2+4}$

3. $f(x) = \begin{cases} 2x, & \text{if } x < 1 \\ x^2, & \text{if } x \geq 1 \end{cases}$

Determine the intervals on which $f(x)$ is continuous.

4. $f(x) = \sqrt{x+3}$

5. $f(x) = \sin(x^2 + 2)$

Answers

1) $x = 1, x = -1$

2) none

3) $x = 1$

4) $[-3, \infty)$

5) $(-\infty, \infty)$