

Quiz 1.12

Name _____

1. Which of the following functions are continuous on the interval $0 < x < 5$?

1. $f(x) = \frac{x-3}{x^2-9}$

2. $g(x) = \frac{x-3}{x^2+9}$

3. $h(x) = \ln(x-3)$

- (A) II only
- (B) I and II only
- (C) I and III only
- (D) II and III only

2.
$$f(x) = \begin{cases} e^x & \text{for } x \leq -1 \\ x^3 + 2x & \text{for } -1 < x \leq 0 \\ \frac{5x}{x-2} & \text{for } 0 < x \leq 4 \\ \cos(3x) & \text{for } x > 4 \end{cases}$$

Let f be the function given above. On which of the following intervals is f continuous?

- (A) $(-5, 0)$
- (B) $(-1, 2)$
- (C) $(0, 3)$
- (D) $(2, 5)$

3. Which of the following functions is not continuous on the interval $-\infty < x < \infty$?



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(A) $f(x) = 4x^2 - 2x + 1$

(B) $g(x) = \frac{1}{x^3 + 3x^2 - 2x - 5}$

(C) $h(x) = \cos(\pi x)$

(D) $k(x) = \frac{1}{e^x}$