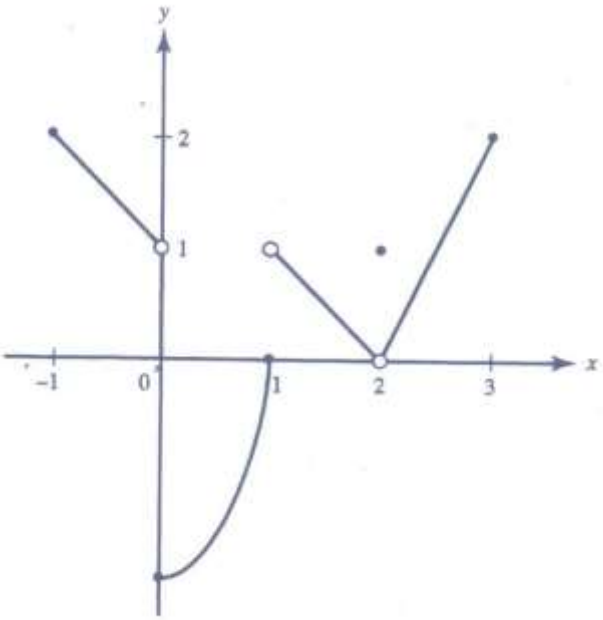
DATE: _____

**Continuity (Removable & Non-Removable) – Multiple Choice**

**1.** On which of the following intervals is *f* continuous?




**(A)** $-1 \le x \le 0$

**(B)** $0 < x < 1$

**(C)** $1 \le x \le 2$

**(D)** $2 \le x \le 3$

**(E)** none of these

**2.** The function *f* has a jump discontinuity at

**(A)** $x = -1$

**(B)** $x = 1$

**(C)** $x = 2$

**(D)** $x = 3$

**(E)** none of these

**3.** The function *f* has a removable discontinuity at

**(A)** $x = 0$

**(B)** $x = 1$

**(C)** $x = 2$

**(D)** $x = 3$

**(E)** none of these

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**4.** The graph of $y = \dfrac{x^2 - 9}{3x - 9}$ has

**(A)** a vertical asymptote at $x = 3$

**(B)** a horizontal asymptote at $y = \dfrac{1}{3}$

**(C)** a removable discontinuity at $x = 3$

**(D)** an infinite discontinuity at $x = 3$

**(E)** none of these

**5.** The function $f(x) = \begin{cases} \dfrac{x^2}{x} & x \neq 0 \\ 0 & x = 0 \end{cases}$

**(A)** is continuous everywhere

**(B)** is continuous except at $x = 0$

**(C)** has a removable discontinuity at $x = 0$

**(D)** has an infinite discontinuity at $x = 0$

**(E)** has $x = 0$ as a vertical asymptote

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**6.** Suppose $\lim_{x \to -3^-} f(x) = -1$, $\lim_{x \to -3^+} f(x) = -1$, and $f(-3)$ is not defined.
Which of the following statements is (are) true?

I. $\lim_{x \to -3} f(x) = -1$

II. $f$ is continuous everywhere except at $x = -3$.

III. $f$ has a removable discontinuity at $x = -3$.

**(A)** None of them

**(B)** I only

**(C)** III only

**(D)** I and III only

**(E)** All of them