Good Luck to _Answer key_ Date _____

Calculus — Practice Quiz: Limits and Continuity

Using the graph of $f(x)$, find the following
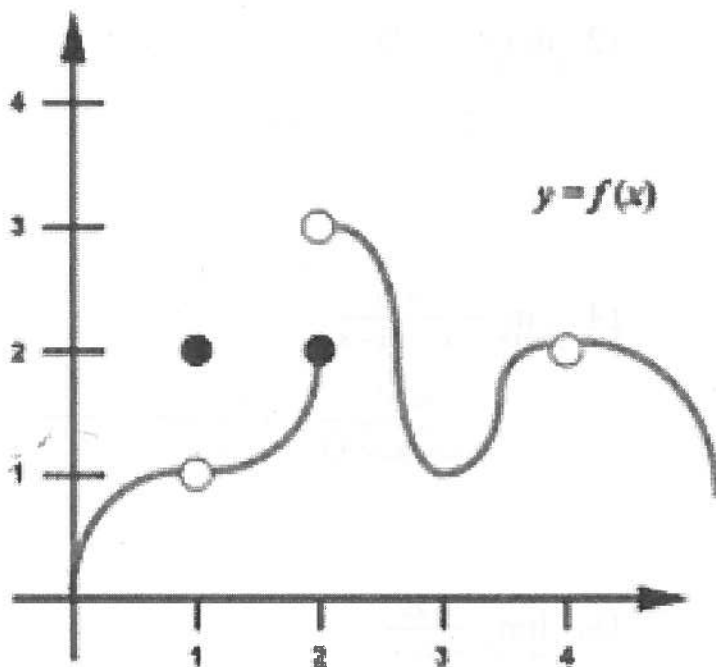
1. $f(1) = 2$

2. $f(4) =$ does not exist (dne)

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

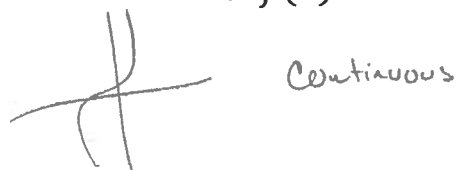4. $\lim_{x \to 2} f(x)$ dne

5. $\lim_{x \to 2^+} f(x) = 3$

6. $\lim_{x \to 2^-} f(x) = 2$
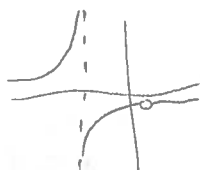
7. $\lim_{x \to 3} f(x) = 1$

$y = f(x)$

Determine if each function is continuous. If it is not state the type of discontinuity the function has. graphs are for your reference

8. $f(x) = x^3 - 4x^2 + 5x - 1$

Continuous

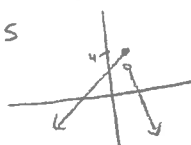9. $f(x) = -\frac{x-1}{x^2+2x-3} \cdot \frac{-(x-1)}{(x+3)(x-1)} = \frac{-1}{x+3}$

discontinuous nonremovable d removable

10. $f(x) = \begin{cases} x+1, & x \le 1 \\ -\frac{x}{2}+4, & x > 1 \end{cases}$

$1+1=2$

$-\frac{1}{2}+4 = 3.5$

discontinuous nonremovable

11. $f(x) = -\frac{x^2+5x+6}{x+3} - \frac{(x+3)(x+2)}{x+3} = (x+2)$

discontinuous removable