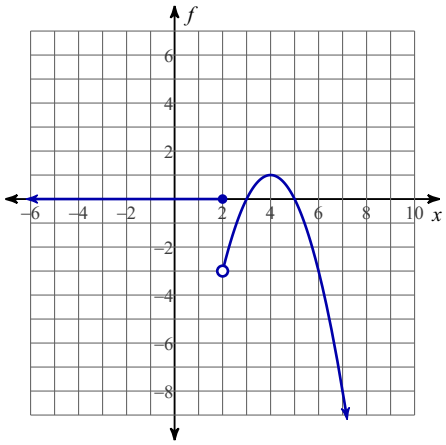
AP Calculus AB Name_____ ID: 1

Ch2 Hwk#1

Date_____ Period____

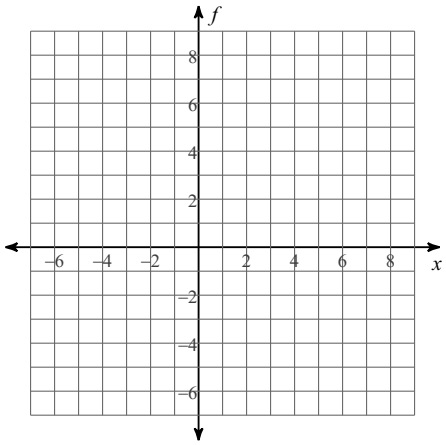
Find the intervals on which each function is continuous.

1) $f(x) = \begin{cases} 0, & x \le 2 \\ -x^2 + 8x - 15, & x > 2 \end{cases}$



Find the intervals on which each function is continuous. You may use the provided graph to sketch the function.

2) $f(x) = \begin{cases} -\frac{x}{2} + \frac{7}{2}, & x \le 1 \\ x - 1, & x > 1 \end{cases}$



Find the intervals on which each function is continuous.

3) $f(x) = -x^4 + x^2 + x - 3$

4) $f(x) = \begin{cases} 3 - \frac{x}{2}, & x \ne -2 \\ 2, & x = -2 \end{cases}$

Differentiate each function with respect to *x*. Please use positive exponents in your final answers.

5) $y = -x^5$

6) $y = 3x^5 + x^4 - x^3$

7) $y = -\frac{1}{3}x^{-2} + \frac{1}{2}x^{-4}$

8) $y = 4x^5 + 3x^{-4}$

9) $\frac{dy}{dx}\sin(x) =$

10) $\frac{dy}{dx}\cos(x) =$