Section 4.1-4.3 Part 3 : Additional Problems

In problems 1-6, find the absolute maximum and minimum, if either exists, for the function and the indicated intervals.

1. $f(x) = x^3 - 12x^2 + 36x - 15$
   (a) $[1, 9]$
   (b) $[1, 4]$
   (c) $(3, 7)$
2. $f(x) = \dfrac{1}{(x-3)^2}$
   (a) $[0, 2]$
   (b) $[0, 7]$
   (c) $(-\infty, \infty)$
3. $f(x) = \dfrac{(x-2)}{(x-4)^2}$
   (a) $[-2, 3]$
   (b) $[5, 8)$
   (c) $[-5, 5]$
4. $f(x) = \dfrac{(x-5)}{(x-2)^2}$
   (a) $[0, 6]$
   (b) $[0, 10]$
   (c) $(-\infty, \infty)$
5. $f(x) = \dfrac{-1}{x^2 - 4}$
   (a) $[-1, 1]$
   (b) $[0, 5]$
6. $f(x) = \cos(x)$ on $\left[\dfrac{-\pi}{2}, \dfrac{\pi}{2}\right)$