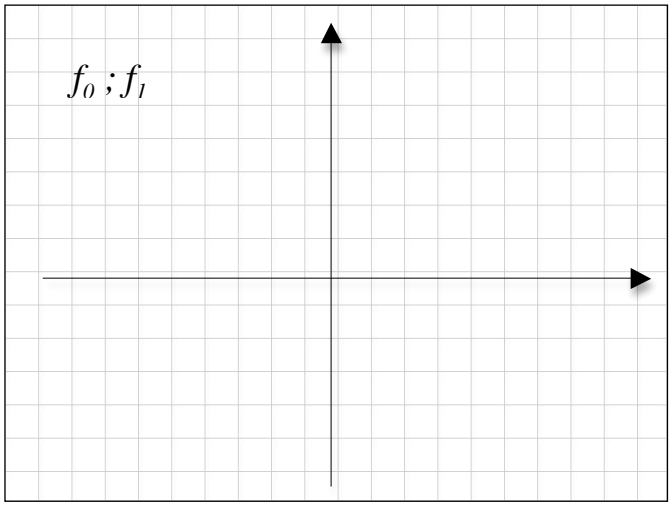
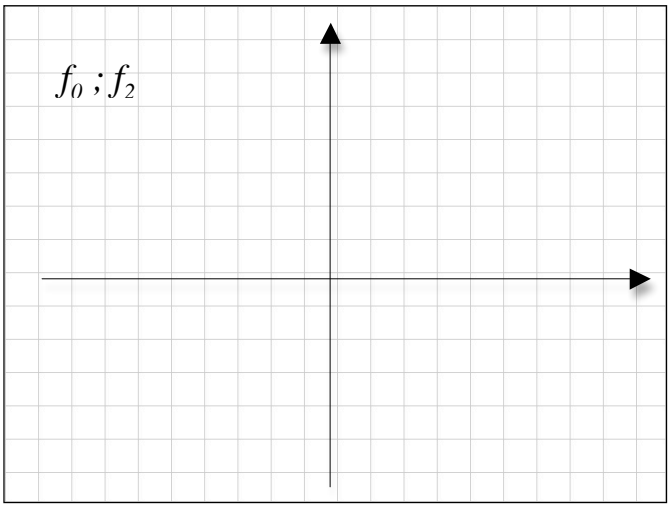
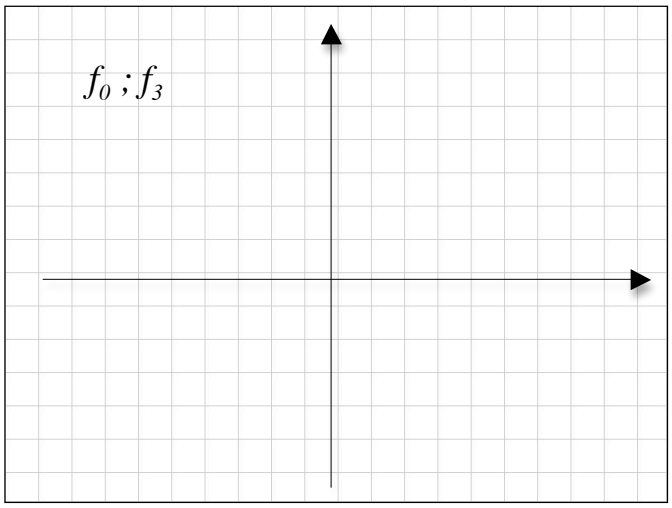
I –Functions with Absolute value and Radicals. Sketch the graph of each of the following functions : f_1 to f_6 in the same picture as f_0.

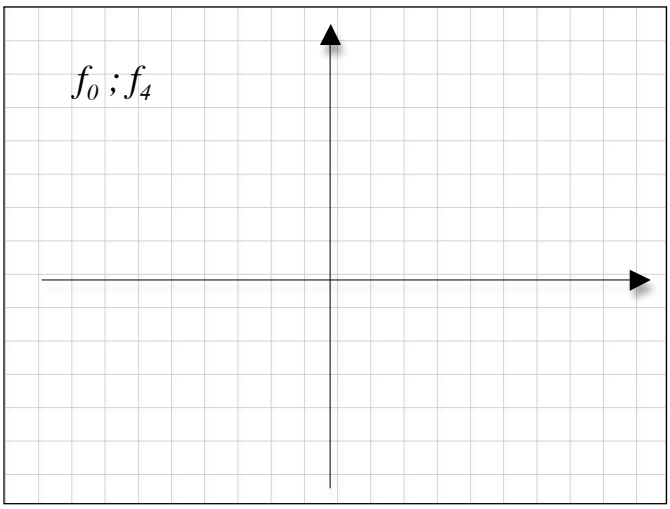
$$f_0(x)=\sqrt{x} \quad ; \quad f_1(x)=\sqrt{-x} \quad ; \quad f_2(x)=-\sqrt{-x} \quad ; \quad f_3(x)=\sqrt{|x|}$$

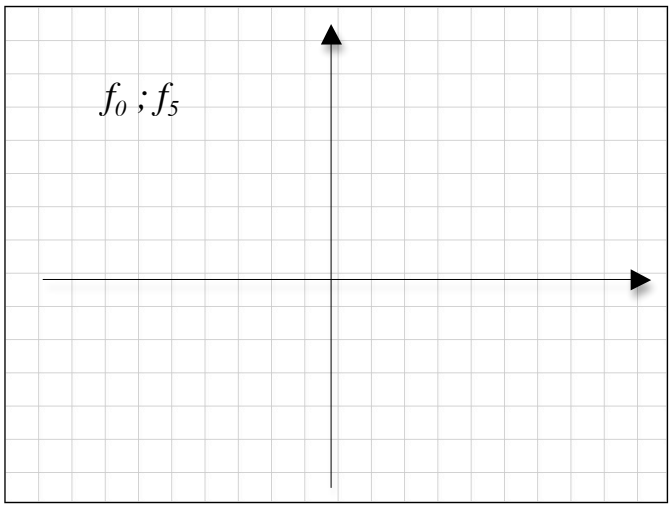
$$f_4(x)=-\sqrt{3-x}+2 \quad ; \quad f_5(x)=\sqrt{|x-3|}+2 \quad ; \quad f_6(x)=\sqrt{4x-8}-2$$

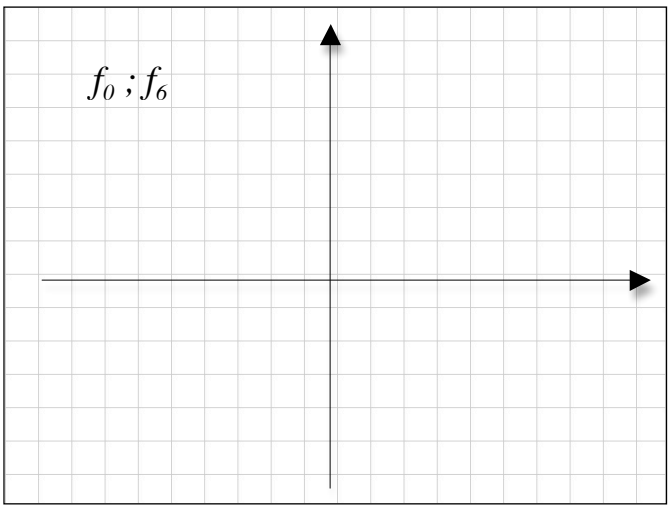






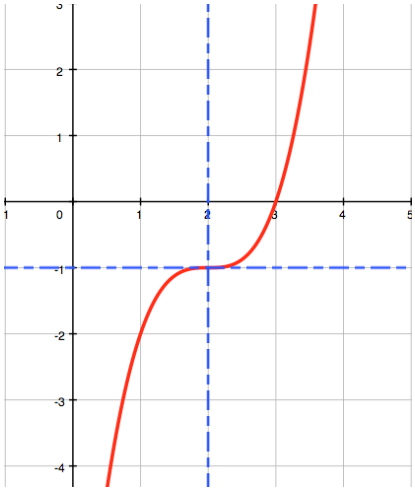




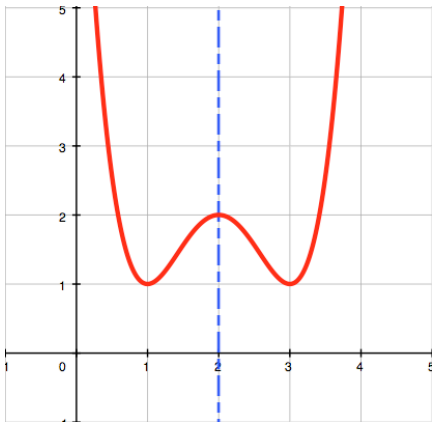


II – Study the symmetries of each of the following functions : find their axes or center of symmetry and **verify by showing the appropriate calculations** :

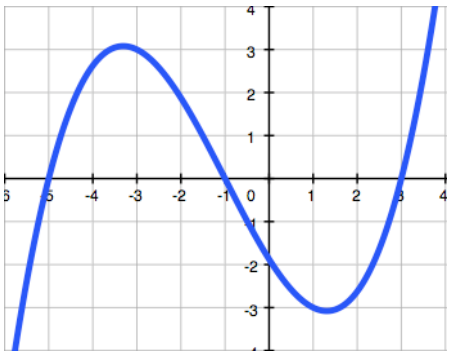
1. $y = f(x) = x^3 - 6x^2 + 12x - 9$



2. $y = f(x) = x^4 - 8x^3 + 22x^2 - 24x + 11$



3. $y = f(x) = \frac{1}{8}\left(x^3 + 3x^2 - 13x - 15\right)$



4. $y = f(x) = \frac{x^2 - 2x - 3}{x^2 - 2x - 8}$