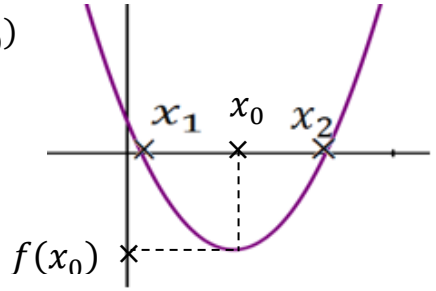
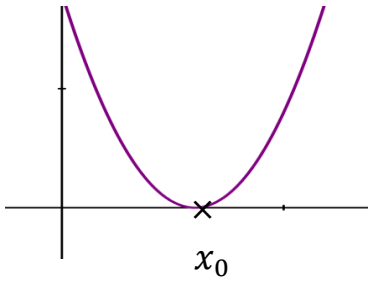
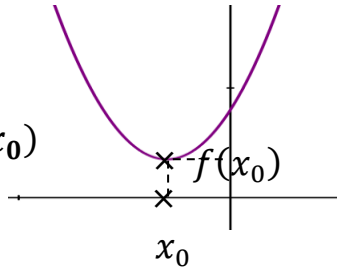
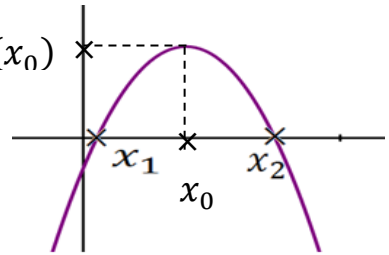
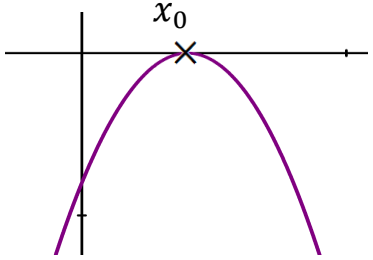
$f(x) = ax^2 + bx + c$ $\quad \Delta = b^2 - 4ac$ $\quad f(x) = a(x - x_0)^2 + f(x_0)$

	$\Delta > 0 \Rightarrow x_{1\&2} = \frac{-b \pm \sqrt{\Delta}}{2a}$	$\Delta = 0 \Rightarrow x_0 = -\frac{b}{2a}$	$\Delta < 0$
$a > 0$ $\begin{array}{\|c\|ccc\|}\hline x & -\infty & x_0 & +\infty \\ \hline f(x) & \searrow & f(x_0) & \nearrow \\ \hline \end{array}$	$f(x) = a(x - x_1)(x - x_2)$ $f(x) = 0 \Rightarrow S = \{x_1; x_2\}$ Signe $\begin{array}{\|c\|ccccc\|}\hline x & -\infty & x_1 & & x_2 & +\infty \\ \hline f(x) & + & 0 & - & 0 & + \\ \hline \end{array}$ Minimum $f(x) \geq f(x_0)$ 	$f(x) = a(x - x_0)^2$ $f(x) = 0 \Rightarrow S = \{x_0\}$ Toujours positif $\begin{array}{\|c\|ccc\|}\hline x & -\infty & x_0 & +\infty \\ \hline f(x) & + & 0 & + \\ \hline \end{array}$ Minimum $f(x) \geq 0$ 	Pas de racines $f(x) = 0 \Rightarrow S = \emptyset$ Toujours positif $\begin{array}{\|c\|cc\|}\hline x & -\infty & +\infty \\ \hline f(x) & + & \\ \hline \end{array}$ Minimum $f(x) \geq f(x_0)$ 
$a < 0$ $\begin{array}{\|c\|ccc\|}\hline x & -\infty & x_0 & +\infty \\ \hline f(x) & \nearrow & f(x_0) & \searrow \\ \hline \end{array}$	$f(x) = a(x - x_1)(x - x_2)$ $f(x) = 0 \Rightarrow S = \{x_1; x_2\}$ Signe $\begin{array}{\|c\|ccccc\|}\hline x & -\infty & x_1 & & x_2 & +\infty \\ \hline f(x) & - & 0 & + & 0 & - \\ \hline \end{array}$ Maximum $f(x) \leq f(x_0)$ 	$f(x) = a(x - x_0)^2$ $f(x) = 0 \Rightarrow S = \{x_0\}$ Toujours négatif $\begin{array}{\|c\|ccc\|}\hline x & -\infty & x_0 & +\infty \\ \hline f(x) & - & 0 & - \\ \hline \end{array}$ Maximum $f(x) \leq 0$ 	Pas de racines $f(x) = 0 \Rightarrow S = \emptyset$ Toujours négatif $\begin{array}{\|c\|cc\|}\hline x & -\infty & +\infty \\ \hline f(x) & - & \\ \hline \end{array}$ Maximum $f(x) \leq f(x_0)$ 