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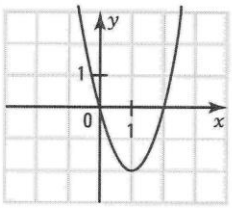
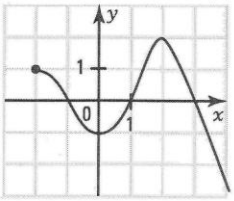
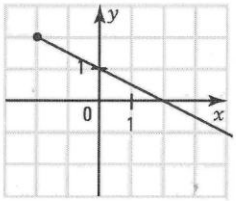
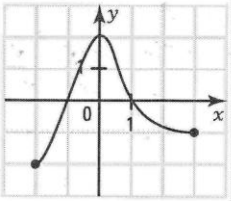
4.

	a)	b)	c)	d)
				
domain	$\mathbb{R}$	$[-2, +\infty[$	$[-2, +\infty[$	$[-2, 3]$
range	$[-2, +\infty[$	$]-\infty, 2]$	$]-\infty, 2]$	$[-2, 2]$
zeros	0 and 2	−1, 1 and 3	2	−1 and 1
initial value	0	−1	1	2
$f(x) \geqslant 0$ if $x \in$	$]-\infty, 0] \cup [2, +\infty[$	$[-2, -1] \cup [1, 3]$	$[-2, 2]$	$[-1, 1]$
$f(x) \leq 0$ if $x \in$	$[0, 2]$	$[-1, 1] \cup [3, +\infty[$	$[2, +\infty[$	$[-2, -1] \cup [1, 3]$
$f \nearrow$ if $x \in$	$[1, +\infty[$	$[0, 2]$	never	$[-2, 0]$
$f \searrow$ if $x \in$	$]-\infty, 1]$	$[-2, 0] \cup [2, +\infty[$	$[-2, +\infty[$	$[0, 3]$
extrema	min $f = -2$	max $f = 2$	max $f = 2$	max $f = 2$, min $f = -2$