(4) $g(x) = (x^2-2)e^x$; $g' = (x^2+2x-2)e^x$, $g'' = (x^2+4x)e^x$

I $g(x)$ is defined everywhere

$g(0) = -2$, $g(x) = 0$ when $x = \pm\sqrt{2} \approx 1.4$.

no symmetry, $\lim_{x\to-\infty} g(x) = 0$ (from hint!).

II $g'(x) = 0$ when $x = -1 \pm \sqrt{3}$ (x $-2.7, 0.7$)

g'	$+$		$-$		$+$
g	$\nearrow$	-2.7	$\searrow$	0.7	$\nearrow$

g has a local max at $-1-\sqrt{3}$; a local min at $-1+\sqrt{3}$.

III $g''(x) = 0$ when $x = 0$ or $x = -4$

g''	$+$		$-$		$+$
g	$\cup$	-4	$\cap$	0	$\cup$

g has inflection points at $x = -4, 0$.

IV

x	$(-\infty)$	$-4.$	$-1-\sqrt{3}$ -2.7	$-\sqrt{2}$ -1.4	0	$-1+\sqrt{3}$ $.7$	$\sqrt{2}$ 1.4	1.5
g	(0)	$.26$	$.36$	0	-2	-3	0	1.12
	limit	infl.	max		infl	min