

5(a) $f(x) = x^4 - 2x^2$; $f'(x) = 4x^3 - 4x$; $f''(x) = 12x^2 - 4$
 $f(x) = x^2(x^2 - 2)$ $f'(x) = 4x(x^2 - 1)$ $f''(x) = 4(3x^2 - 1)$

A. Domain $x \in \mathbb{R}$

B. Intercepts: x-int $0, \pm 1, \pm \sqrt{2}$
 y-int 0

C. Asymptotes: none

D. Inc/Dec $4x(x-1)(x+1) = 0$
 $x = 0, 1, -1$

E. Max/Min
 $x = -1, y = -1$ (-1, -1) min
 $x = 0, y = 0$ (0, 0) max
 $x = 1, y = -1$ (1, -1) min

F. Concavity:
 $4(3x^2 - 1) = 0$
 $x = 0.58, -0.58$

	$4x(x-1)(x+1)$	y'	
$(-\infty, -1)$	-	-	- dec
$(-1, 0)$	-	+	+ inc
$(0, 1)$	+	-	- dec
$(1, \infty)$	+	+	+ inc

	$4(3x^2 - 1)$	y''	
$(-\infty, -0.58)$	+	+	+ CU
$(-0.58, 0.58)$	+	-	- CD
$(0.58, \infty)$	+	+	+ CU

G. Inflection
 $x = -0.58, y = -0.56$
 $x = 0.58, y = -0.56$