

175. a) $f(x) = \underbrace{x^3(x-1)} = x^4 - x^3$
 $f'(x) = 4x^3 - 3x^2$

b) $g(x) = x(x+1)^2 = x \cdot \underbrace{(x+1)(x+1)} = x(x^2 + 2x + 1)$
 $= x^3 + 2x^2 + x$
 $g'(x) = 3x^2 + 4x + 1$

173. $f(x) = x^5 + x^4 + x^3 + x^2 + x + 1$, $f(1) = 1 + 1 + 1 + 1 + 1 + 1 = 6$
 $f'(x) = 5x^4 + 4x^3 + 3x^2 + 2x + 1$
 $f'(-1) = 5(-1)^4 + 4(-1)^3 + 3(-1)^2 + 2(-1) + 1$
 $= 5 - 4 + 3 - 2 + 1 = 3$

177. $f'(x) = 3x^2 + 24x = 0$
 $a=3$ $b=24$ $c=0 \rightarrow x=0$ für -8 f'

-8	0
-9	-1
+	-
+	+

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