EXAM 2 prob 5 Find abs max/min of $f(t) = 2t^3+3t^2-12t$ on $[-3,3]$. Diff everywhere because polynomial.

$f'(t) = 6t^2+6t-12 = 6(t^2+t-2) = 6(t+2)(t-1)$

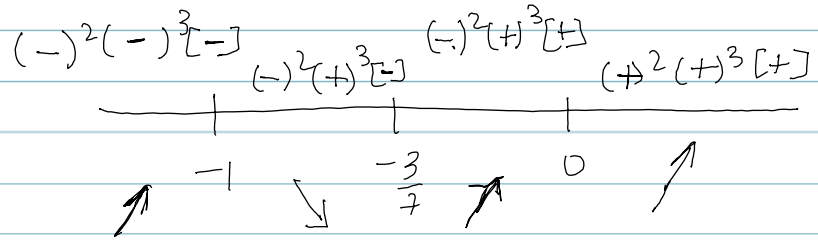
Crit #s: $t = -2, 1$

Check:
$f(-3) = 9$
$f(-2) = 20$
$f(1) = -7 \leftarrow$ MIN
$f(3) = 45 \leftarrow$ MAX

Prob 6 $f(x) = x^3(x+1)^4$

$f'(x) = 3x^2(x+1)^4 + x^3 4(x+1)^3 = x^2(x+1)^3[3(x+1)+4x]$
$= x^2(x+1)^3[7x+3]$

Crit #s: $x = 0, -1, -3/7$



INC: $(-\infty, -1) \cup (-3/7, \infty)$

DEC: $(-1, -3/7)$

REL MAX: $x = -1$

REL MIN: $x = -\frac{3}{7}$