3)

$f'(x) = 0 \iff x = -1$

$f(-1) = \sqrt{9} = 3$

$f(-3) = \sqrt{5}$

$f(2) = 0$

So f has an absolute minimum 0 at $x = 2$ and f has an absolute maximum 3 at $x = -1$

Q2 $f(x) = 4x^5 - 25x^4 + 40x^3$

$f'(x) = 20x^4 - 100x^3 + 120x^2$

$= 20(x^4 - 5x^3 + 6x^2)$

$= 20x^2(x^2 - 5x + 6) = 20x^2(x-2)(x-3)$

We get the variation table

	$-\infty$		0		2		3		∞
x^2	+		+		+		+		
$x-2$	−		−		+		+		
$x-3$	−		−		−		+		
f'	+		+		−		+		
f		↗		↗		↘		↗	

$f(0) = 0$, $f(2) = 48$ $f(3) = 27$