

Quiz 15  
Calculus I

March 28, 2024  
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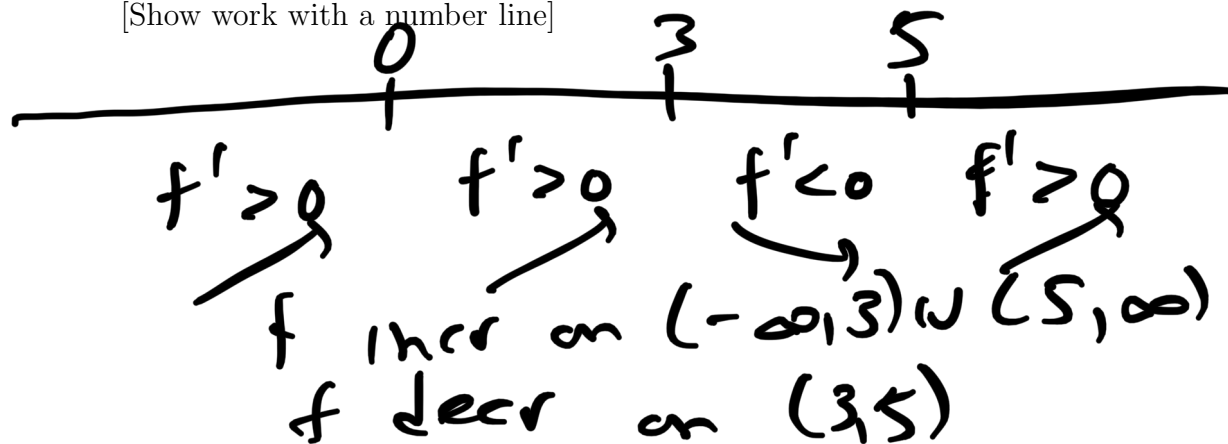
Consider the function  $f(x) = \frac{1}{5}x^5 - 2x^4 + 5x^3 + 75$ .

1. Find the derivative  $f'(x)$  and the critical numbers for  $f(x)$ .

$$f'(x) = x^4 - 8x^3 + 15x^2 = x^2(x^2 - 8x + 15) = x^2(x-3)(x-5) \Rightarrow$$

crit #s are  $x = 0, 3, 5$

2. Find open intervals on which  $f(x)$  is increasing and decreasing.  
[Show work with a number line]



3. Find the  $x$ -coordinate of any relative max/mins for  $f(x)$ .

rel max at  $x = 3$  ( $y = 96.6$ )  
rel min at  $x = 5$  ( $y = 75$ )