**Mathematics in Economics – lecture 4**

1. Extreme of function

**The second derivative may be used to determine local extrema of a function under certain conditions**. If a function has a critical point for which *f*′(*x*) = 0 and

1. the second derivative is positive at this point, then *f* has a local minimum here.
2. the second derivative is negative at this point, then *f* has a local maximum here.







Find the maximum of total revenue function

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Find the minimum of total cost function:

 .

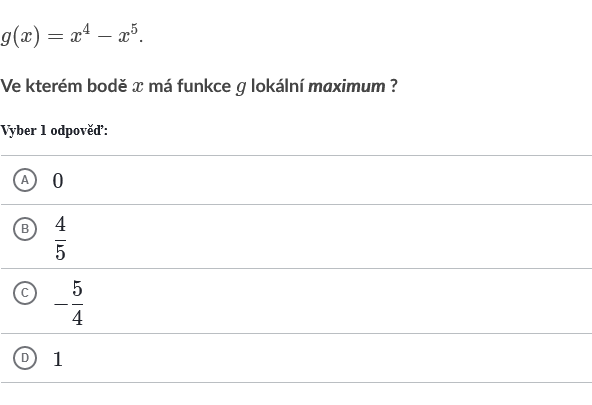
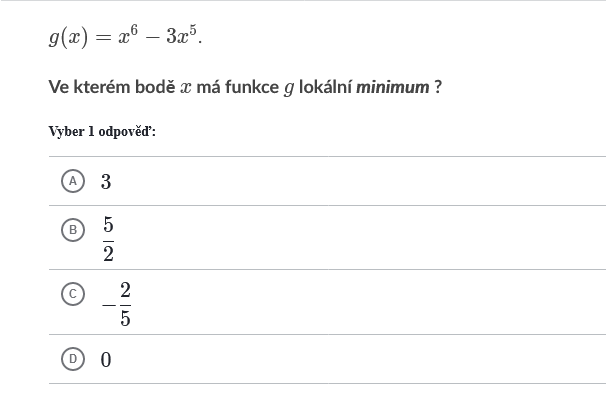
Find the maximum of the profit function:

 .

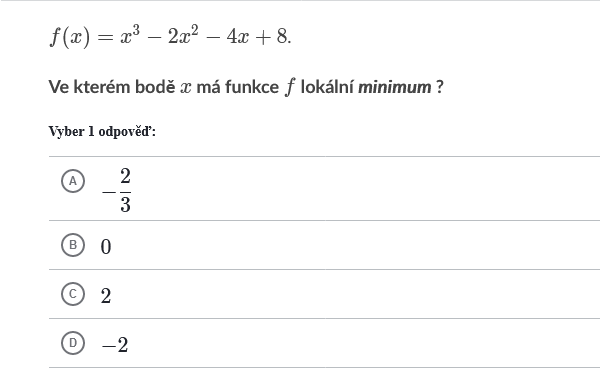
Find the maximum of total revenue function:

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At what point does the function have a local minimum (the first question) resp. maximum (the second question)?



At what point does the function have a local minimum?



At how many points does *the function g have a local minimum* and *the function f a local maximum*?

