MA 16010 Lesson 21: Properties of f from f' (graphically)

Recall: We may find the following information about a function $y = f(x)$ in terms of $f'(x)$:

Critical numbers of f:

Where f is increasing:

Where f is decreasing:

Point of relative maximum of f:

Point of relative minimum of f:

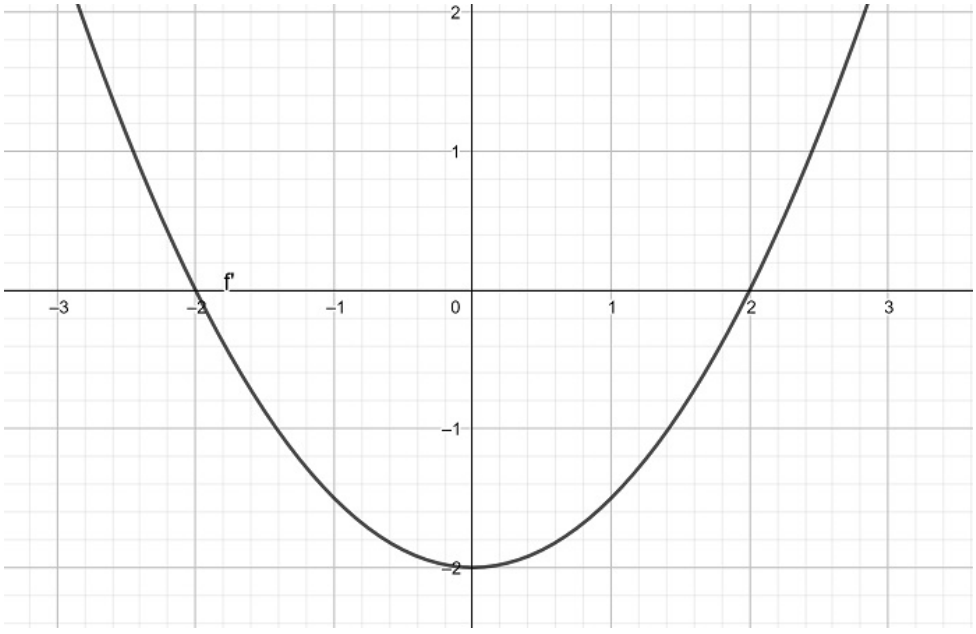
Where f is concave up:

Where f is concave down:

Where f has inflection point (x–coordinate):

$\rightarrow$ From the graph of f', we can tell a lot about f.

Exercise: Given the graph of $f'(x)$ below, find the following about $f(x)$:



Critical numbers:

Increasing intervals:

Decreasing intervals:

Relative maxima of f occur at $x=$

Relative minima of f occur at $x=$

Concave up intervals:

Concave down intervals:

Inflection points (x–coordinate):

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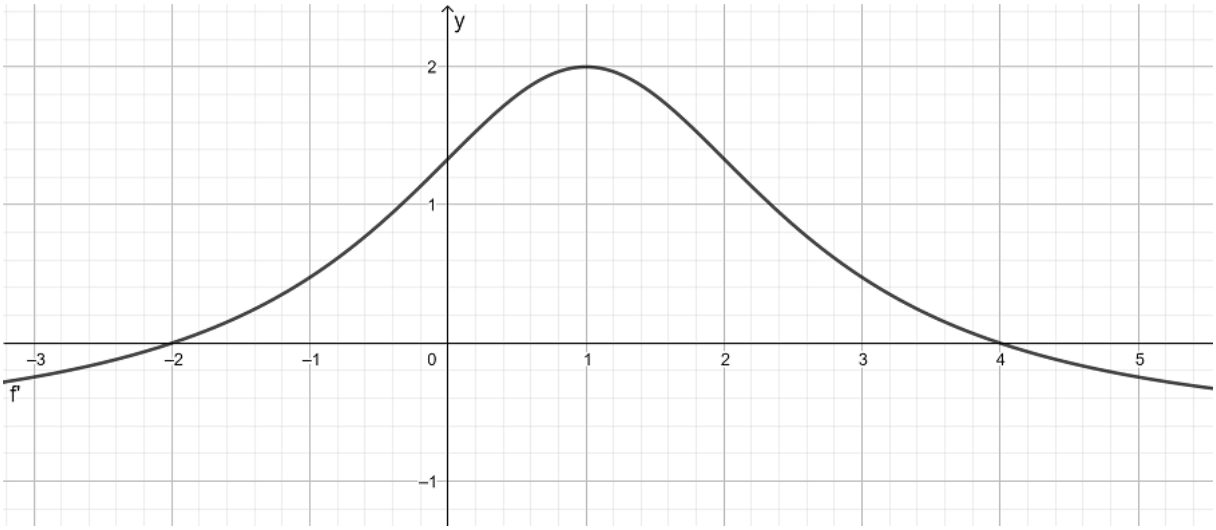

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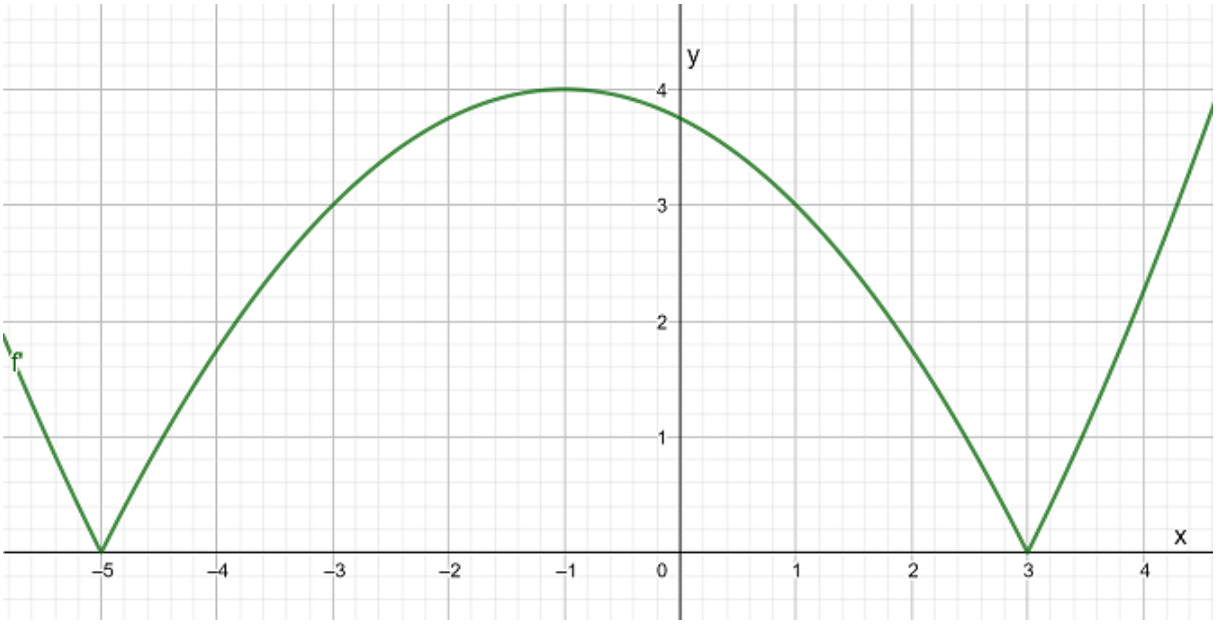

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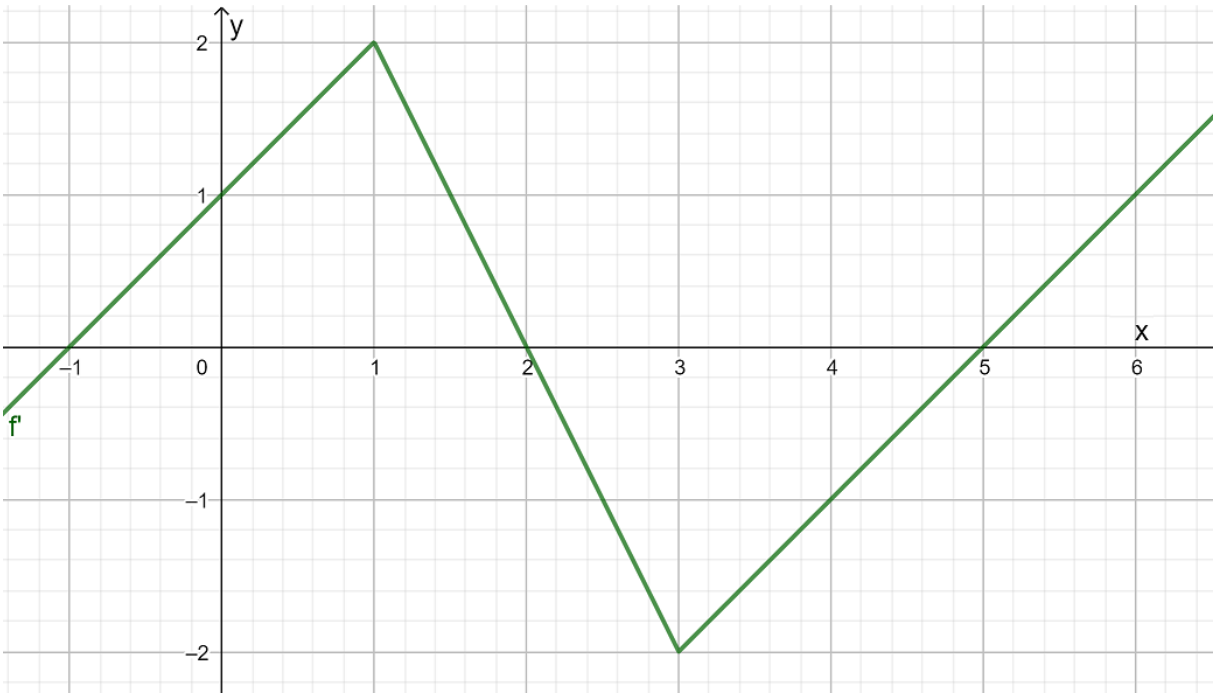

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