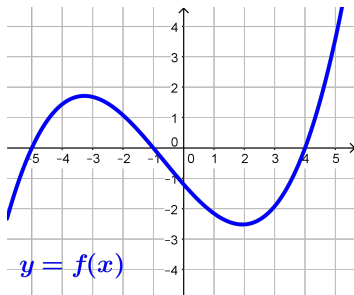


## Horizontal Shifts of Graphs

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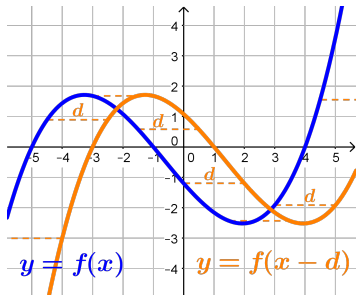
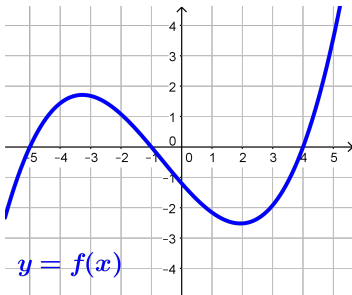
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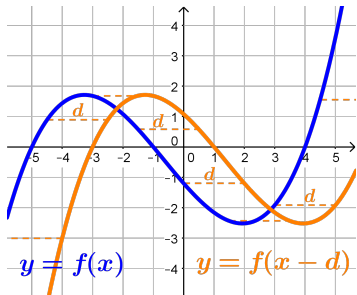
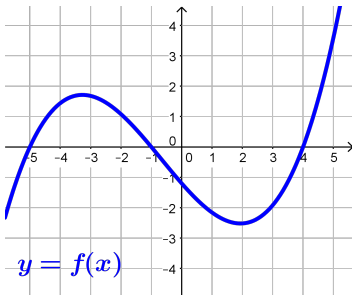
The graph of  $y = f(x - d)$  is the graph of  $y = f(x)$  shifted in the horizontal direction by  $d$



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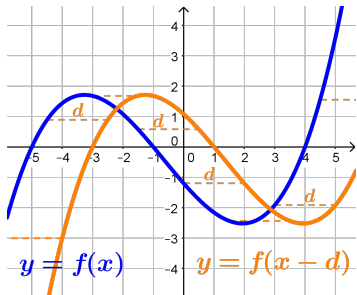
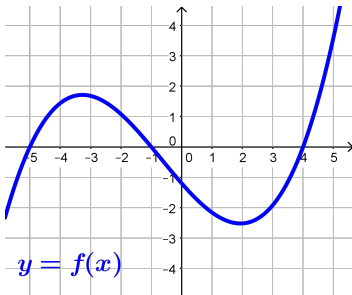


If the number subtracted  $d > 0$  then the graph moves right

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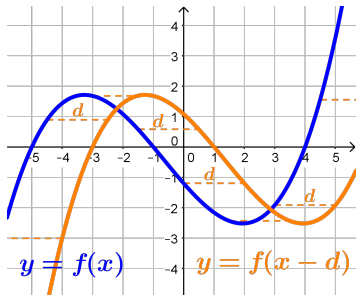
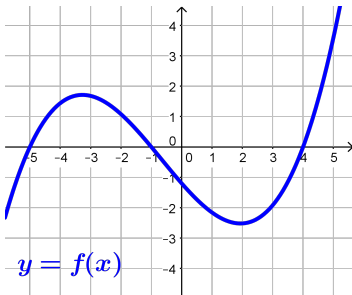


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i.e.  $y = f(x - 3)$  shifts the graph  $y = f(x)$  to the right by 3.

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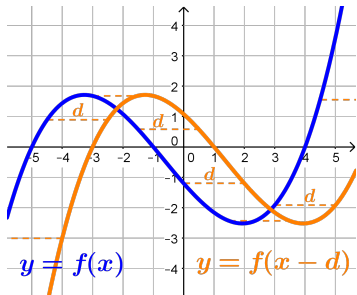
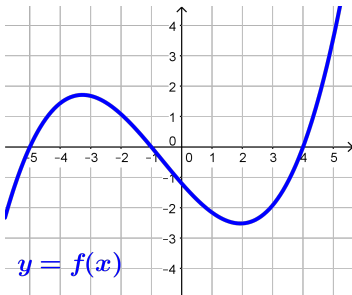


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If the number subtracted  $d > 0$  then the graph moves right  
i.e.  $y = f(x - 3)$  shifts the graph  $y = f(x)$  to the right by 3.  
If the number subtracted  $d < 0$  then the graph moves left  
i.e.  $y = f(x + 3)$  shifts the graph  $y = f(x)$  to the left by 3.