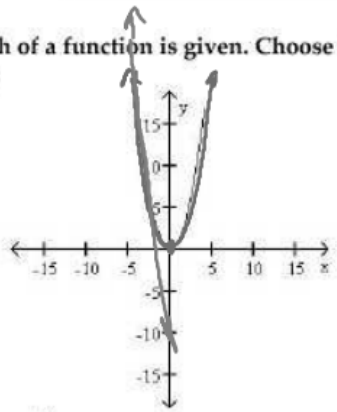
What you'll Learn About

- How to graph the derivative from the original function
- How to graph the function from the derivative

graph of f' below x-axis

The graph of a function is given. Choose the answer ~~that represents the graph of its derivative.~~

1)

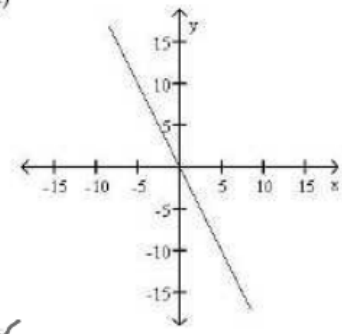


Left
$(-\infty, 0)$ $f'(x) < 0$ (slope is neg)

Right
$(0, \infty)$ $f'(x) > 0$ (slope is +)

f' graph of above the x-axis

A)



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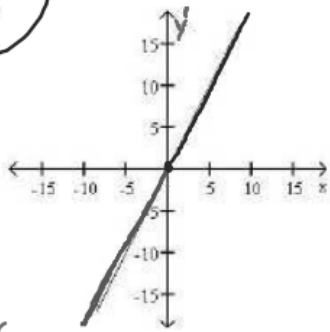

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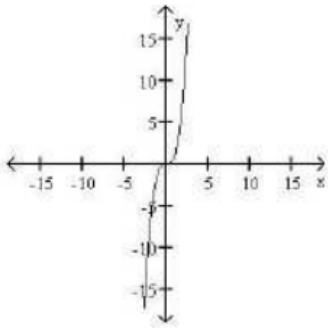

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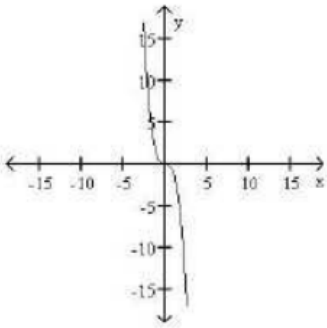

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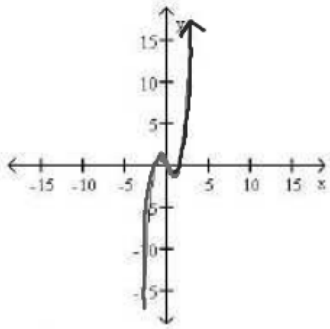


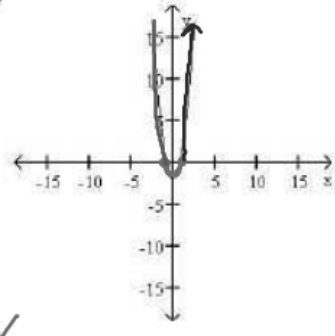
$x \approx -1$ $\quad f'(x) = 0$ (Horizontal Tangent / Slope = 0)

$x \approx 1$ $\quad$ - $f'(x)$ graph x-int at $x = -1$, $x = 1$

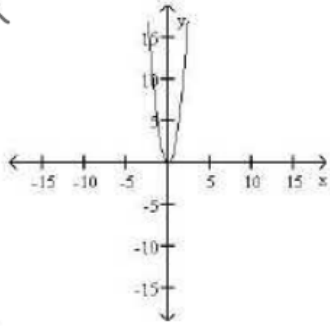
$(-\infty, -1)$ $\quad f'(x) > 0$ (f has pos. slope)

- $f'(x)$ graph above x-axis

A)



~~B)~~



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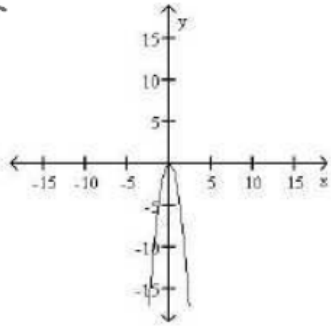

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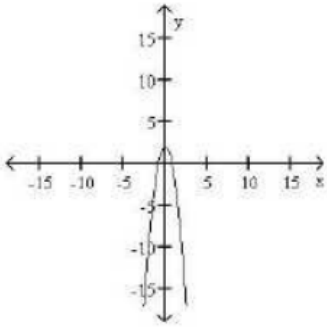

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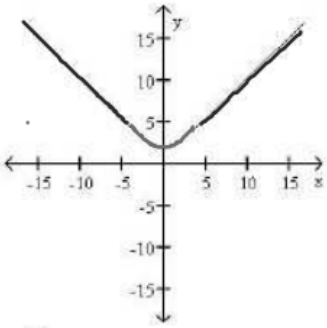
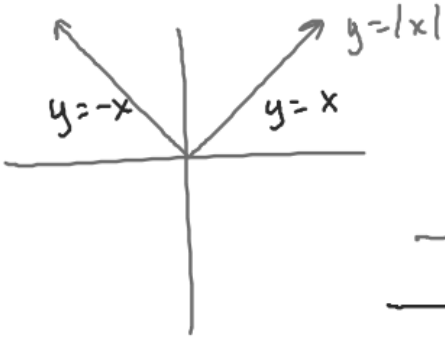
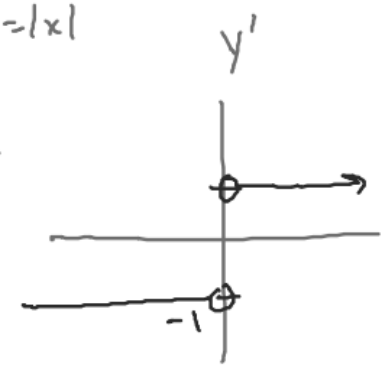
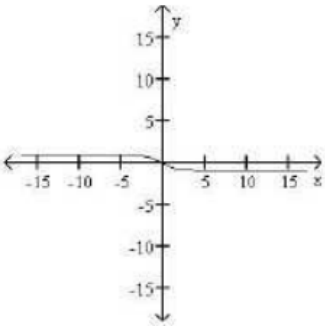


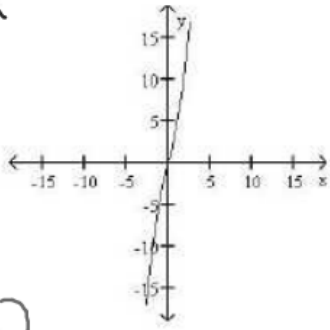




A)



~~B)~~



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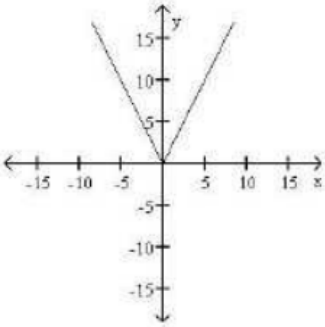

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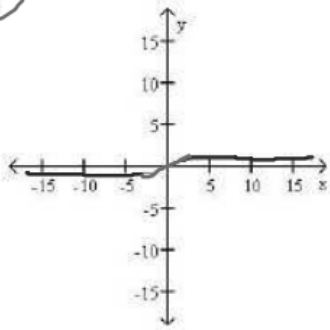

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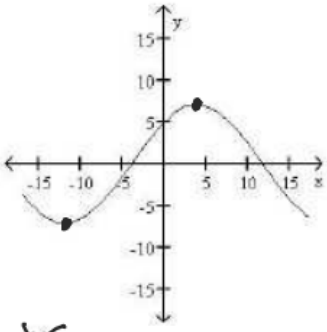
y
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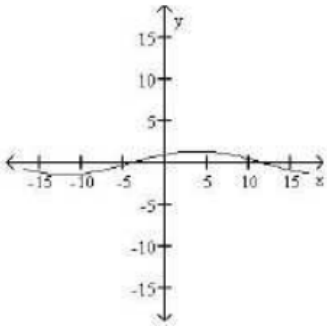
-5
-10
-15

A)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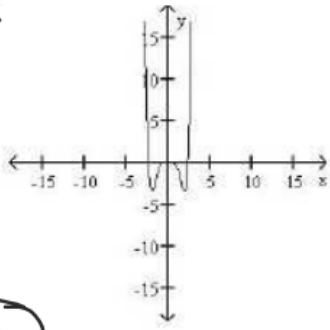
B)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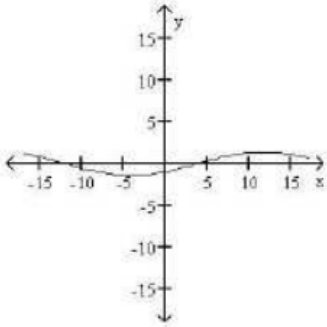
C)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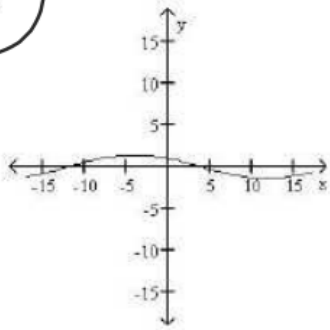
D)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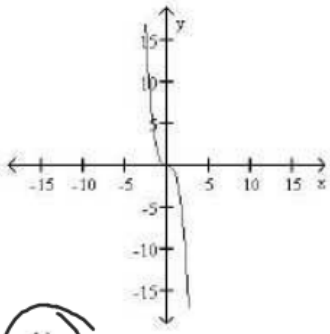
5)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-15 -10 -5 5 10 15 x
-5
-10
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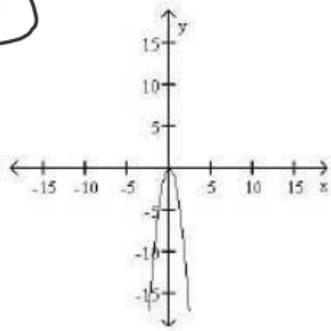
A)


y
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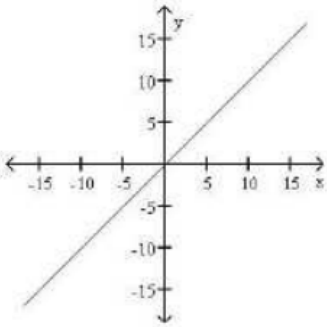
B)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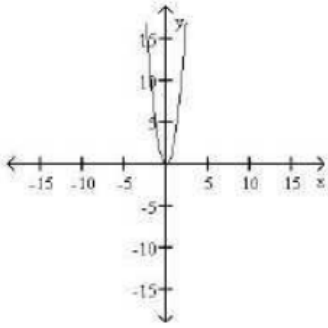
C)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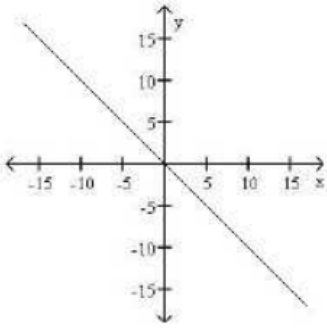
D)


y
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-15 -10 -5 5 10 15 x
-5
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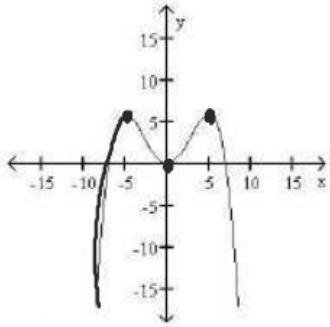
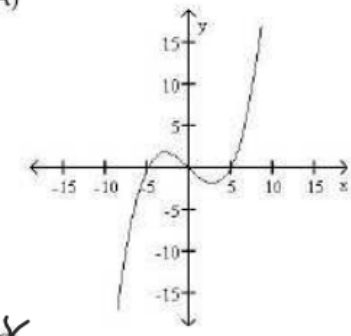
6)

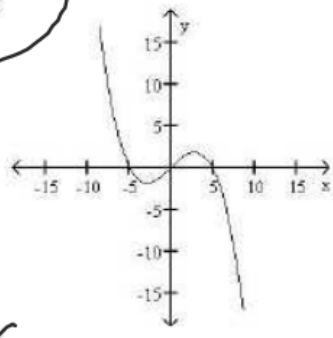


x-int: x = -4, 0, 6

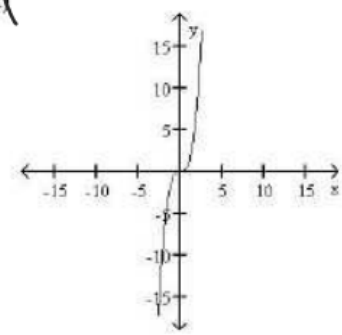
A)



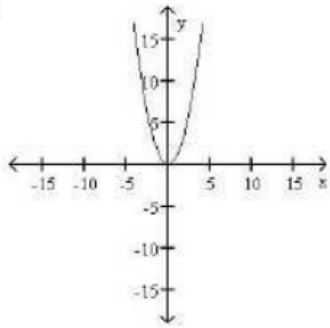
B)



C)



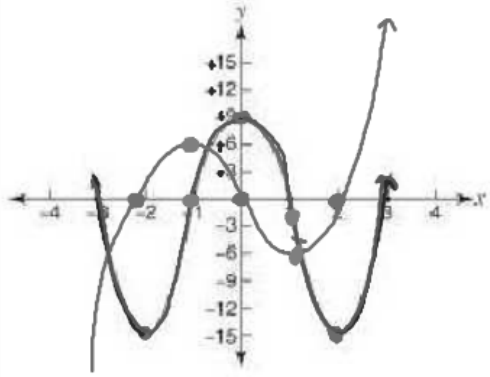
D)

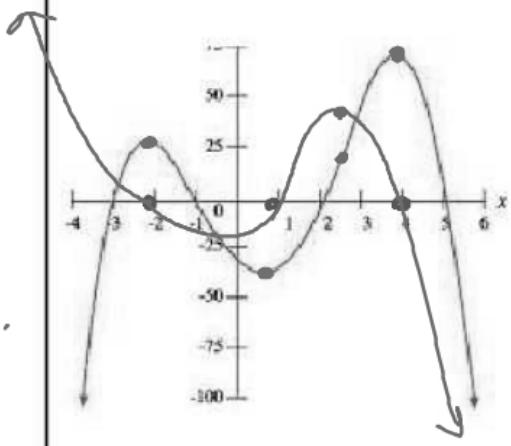


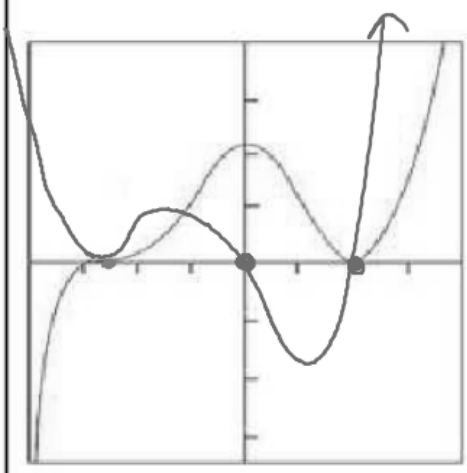
slope of the original is the steepest $f'(x)$ should have a max or min

Sketch $f'(x)$ on the same coordinate plane as the given graph of f(x)

Max/Mins on f(x)
$-f'(x)$ x-int

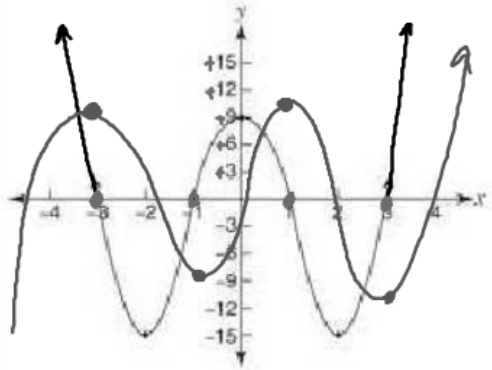






f' above
− f inc
f' below
− f dec

Sketch f(x) on the same coordinate plane as the given graph of $f'(x)$



$(-\infty,-3)$ f' above x-axis
f increasing

x-int of f' are max/min on f