LECTURE 5

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PLAN

1. Poll: which is the derivative

2. Discuss

3. Lesson plan reviews

4. What to look for

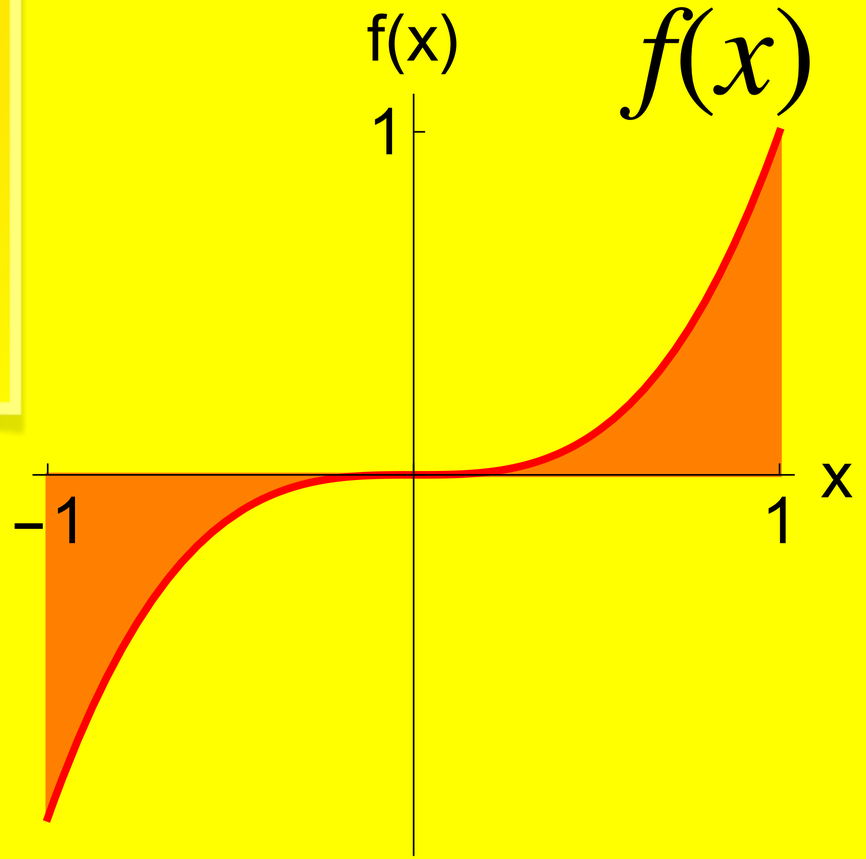
5. Matching game

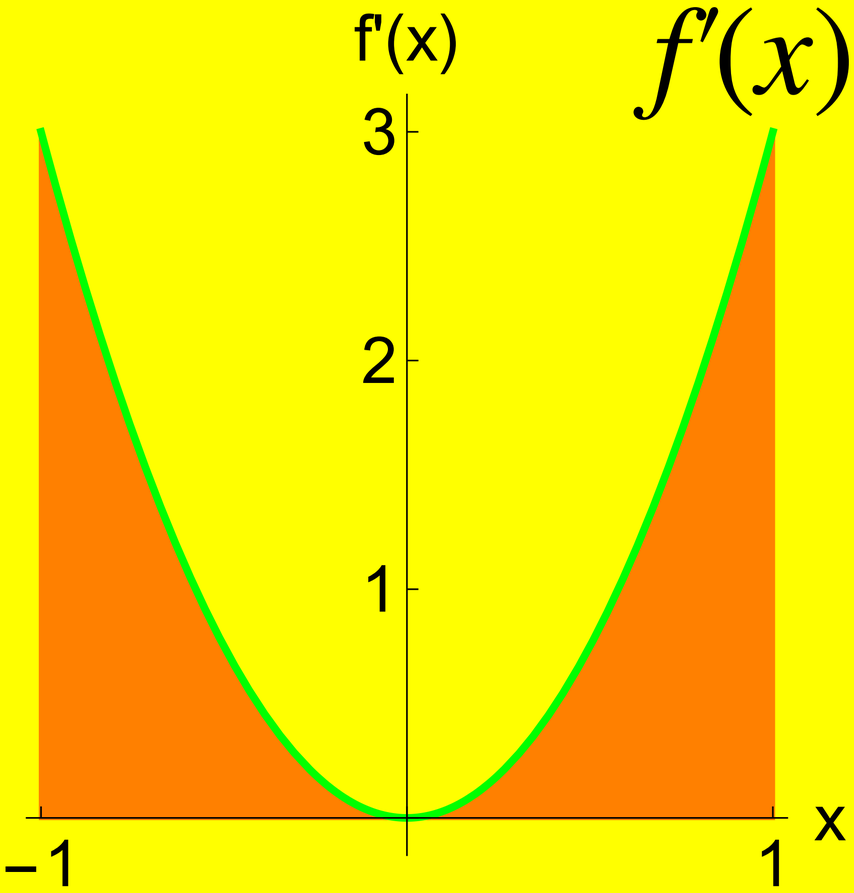
5. Finding the derivative

6. Make list of f,f',f''

6. 360t-3t^2

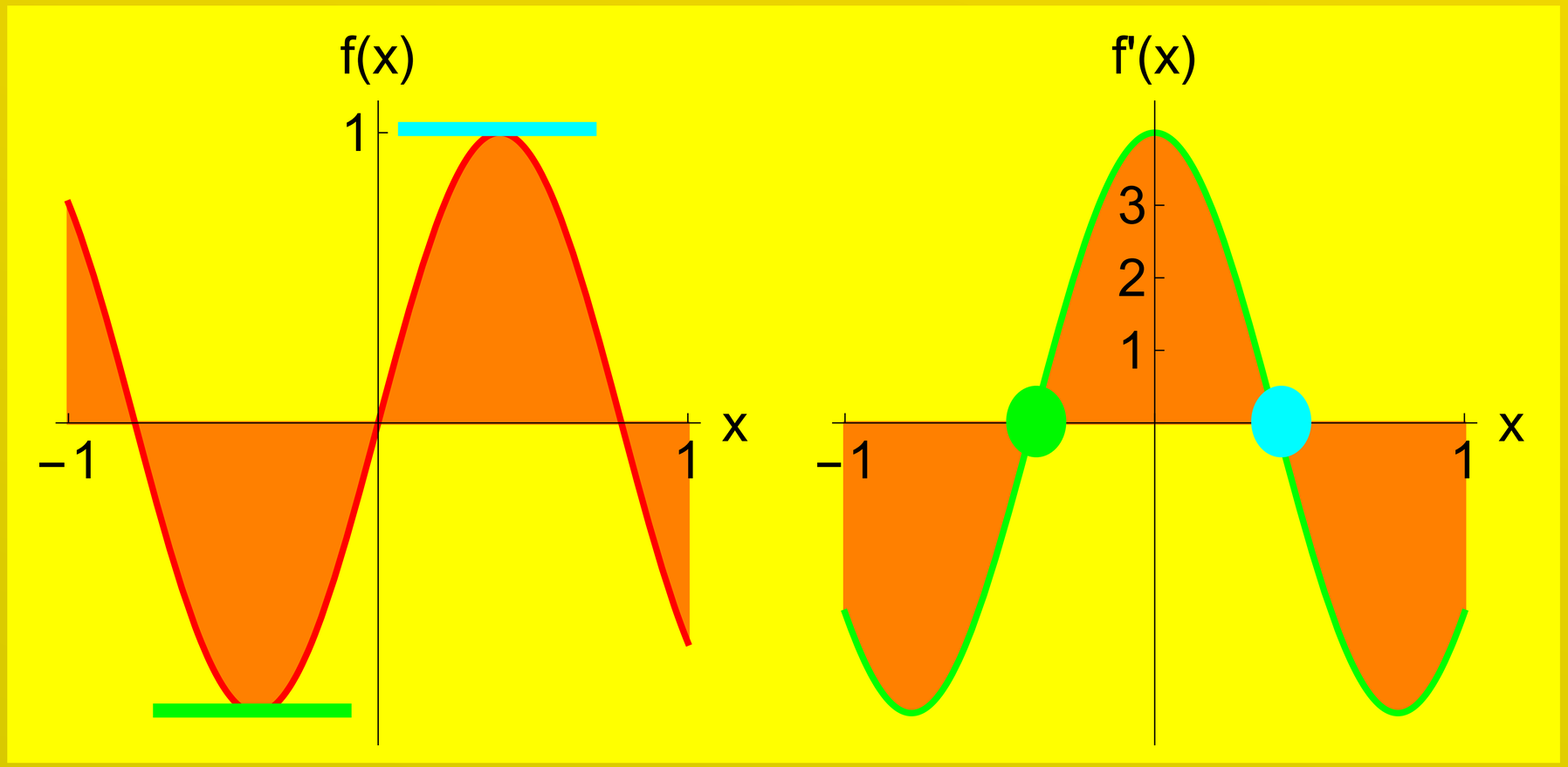
THE DERIVATIVE





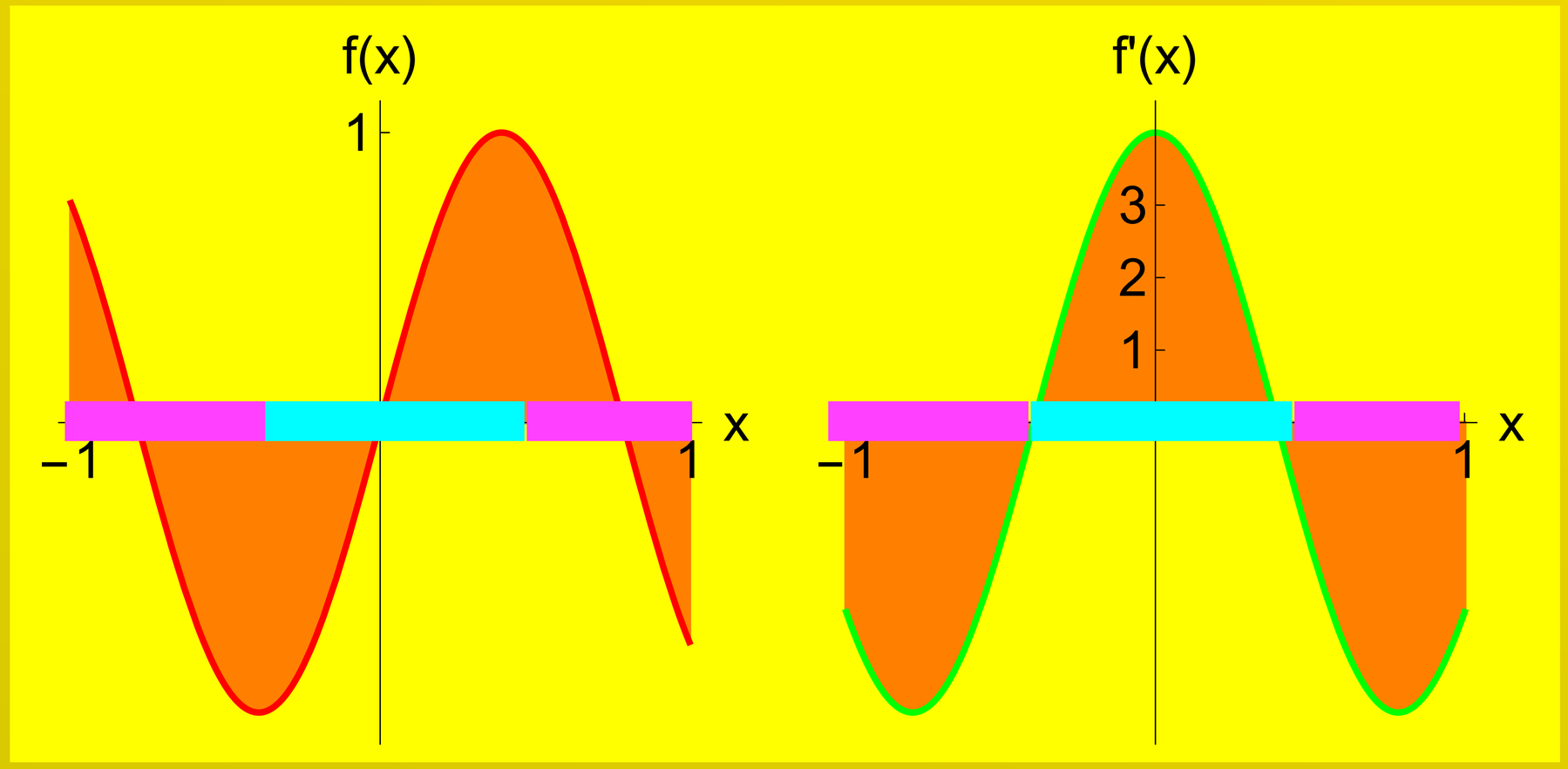
TO LOOK FOR!

$f'(x) = 0$ $f(x)$ is flat



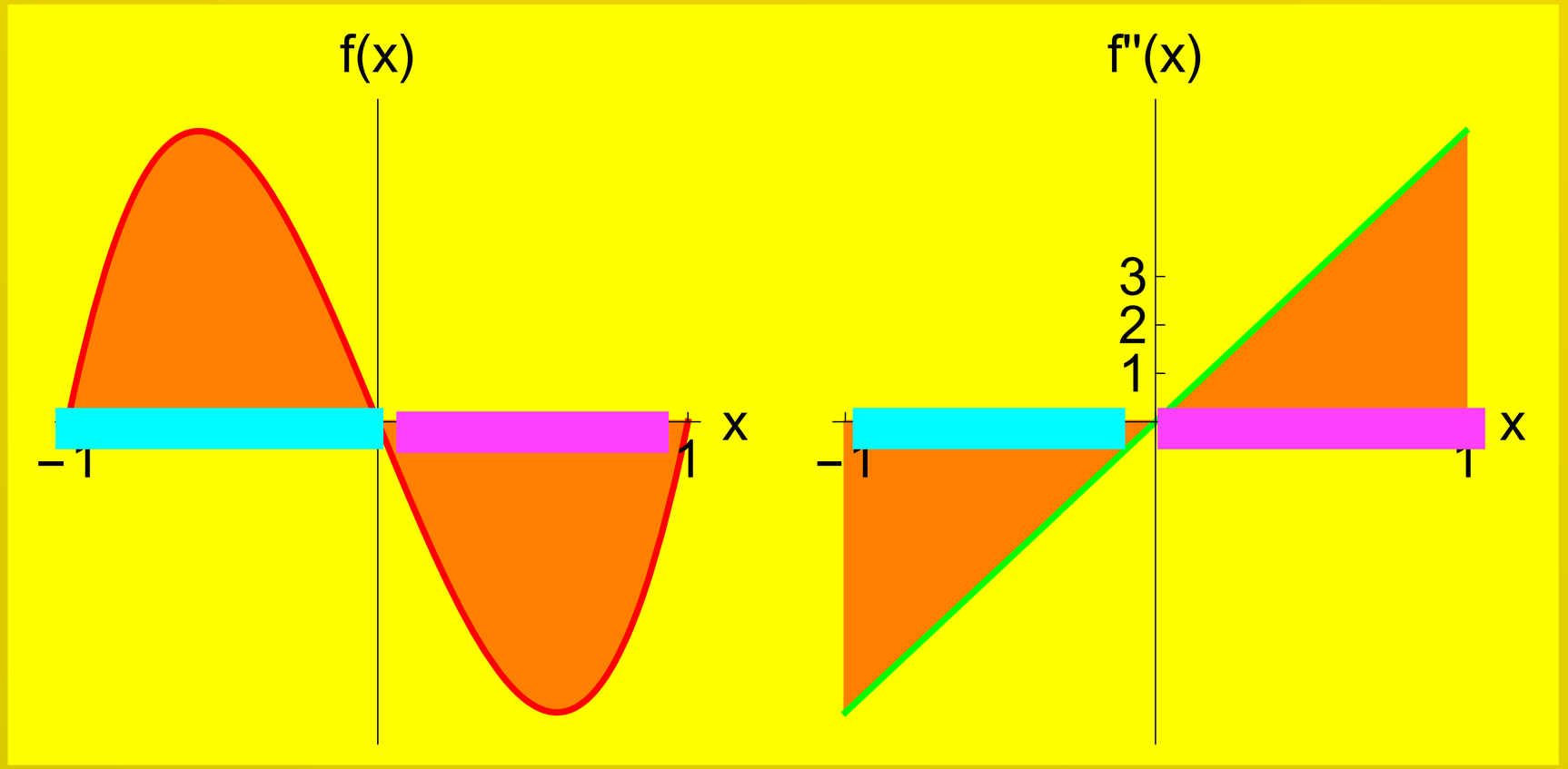
TO LOOK FOR!

$f'(x) > 0$ $f(x)$ increasing

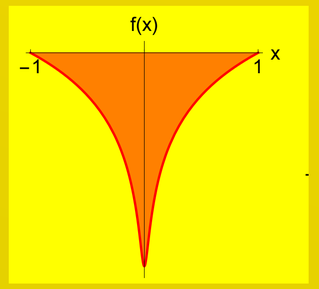


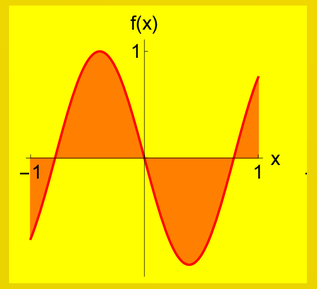
TO LOOK FOR!

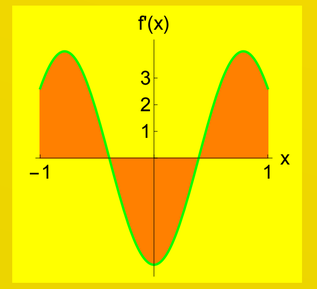
$f''(x) > 0$ $f(x)$concave up

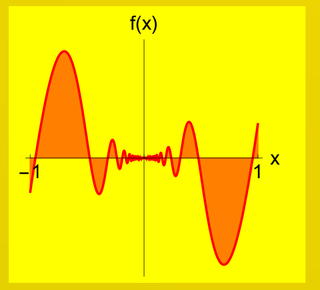


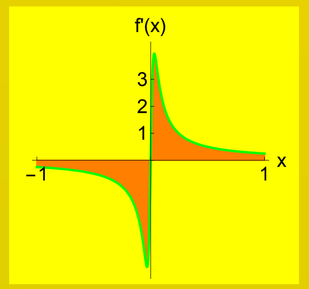
MATCHING

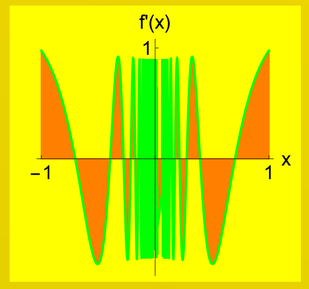

f(x)
−1
1
x

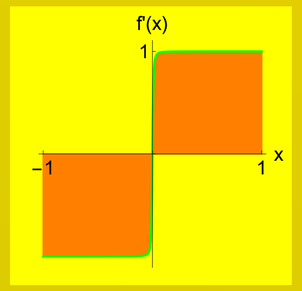

f(x)
1
−1
1
x

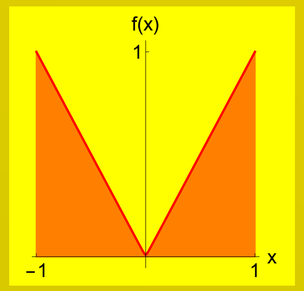

f'(x)
3
2
1
−1
1
x

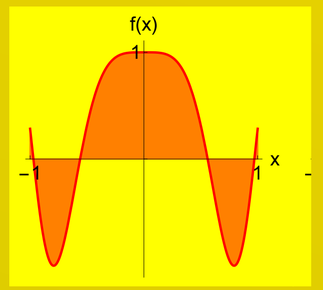

f(x)
−1
1
x

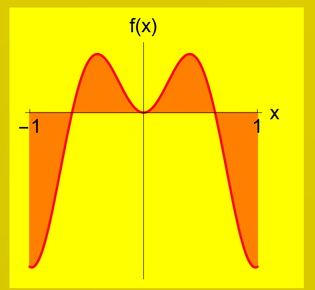

f'(x)
3
2
1
−1
1
x

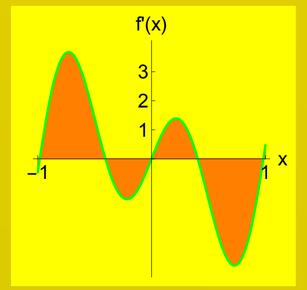

f'(x)
1
−1
1
x

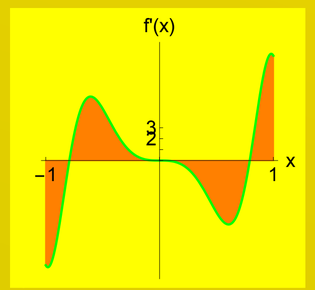

f'(x)
1
−1
1
x


f(x)
1
−1
1
x

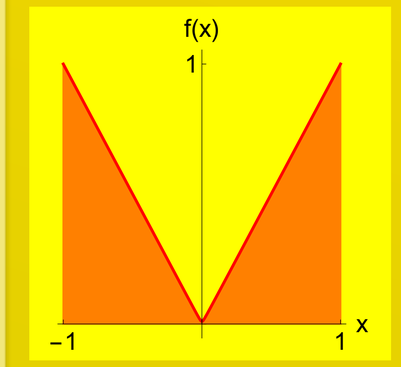

f(x)
1
−1
1
x

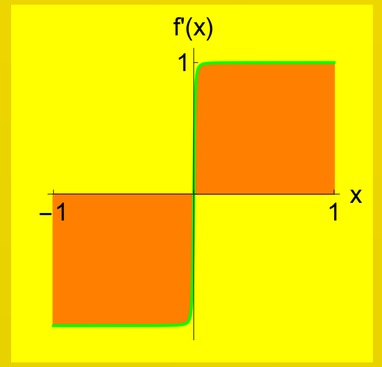

f(x)
−1
1
x

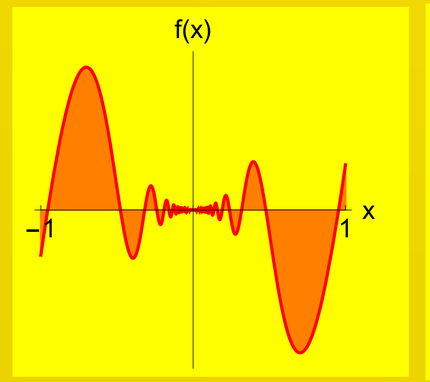

f'(x)
3
2
1
−1
1
x

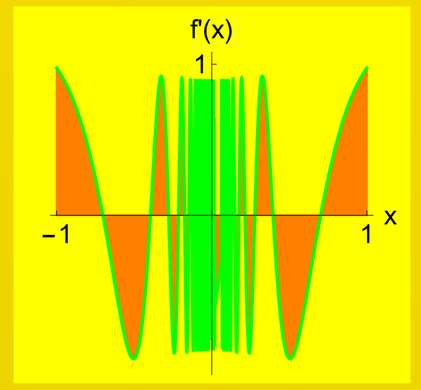

f'(x)
3
2
−1
1
x

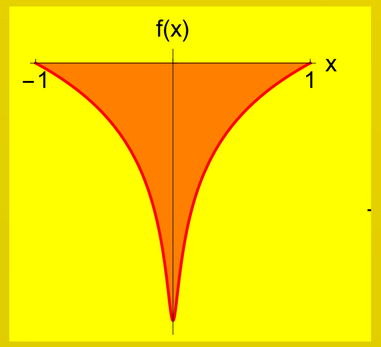
SOLUTION

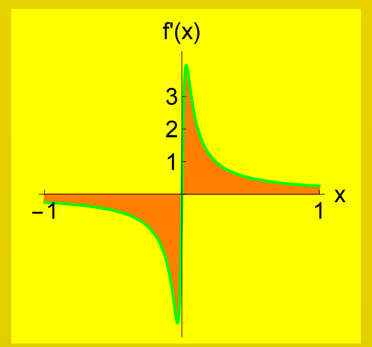

f(x)
1
−1
1
x

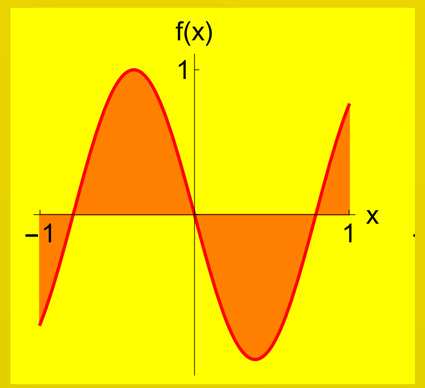

f'(x)
1
−1
1
x

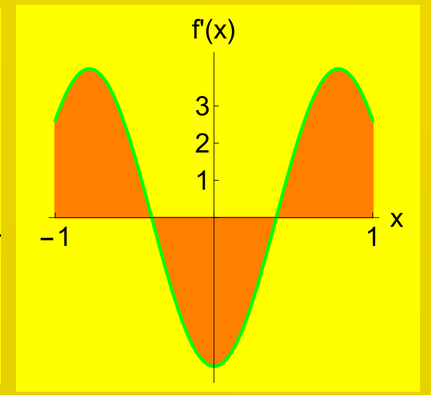

f(x)
−1
1
x

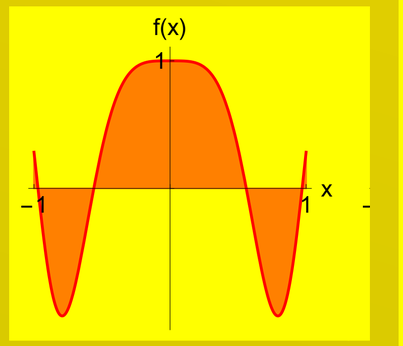

f'(x)
1
−1
1
x

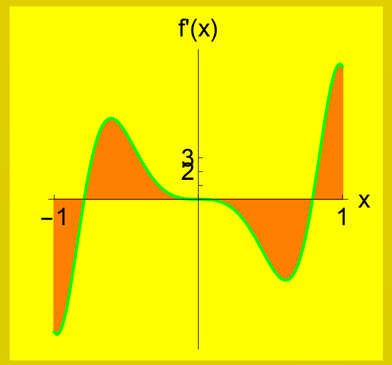

f(x)
−1
1
x


f'(x)
3
2
1
−1
1
x


f(x)
1
−1
1
x


f'(x)
3
2
1
−1
1
x


f(x)
1
−1
1
x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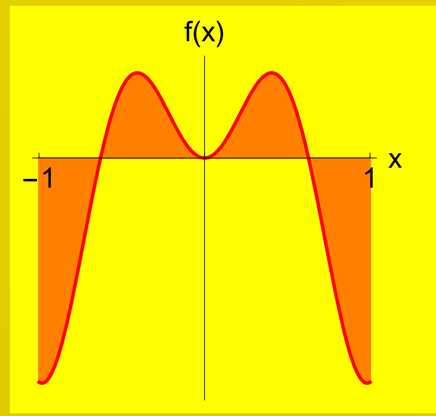
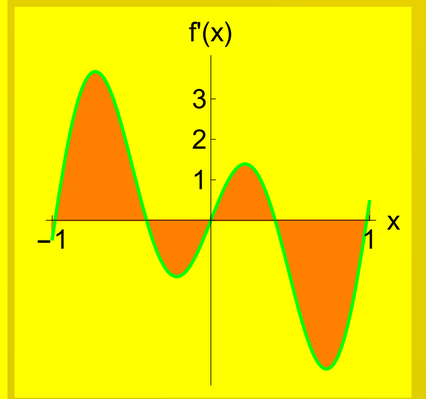
x

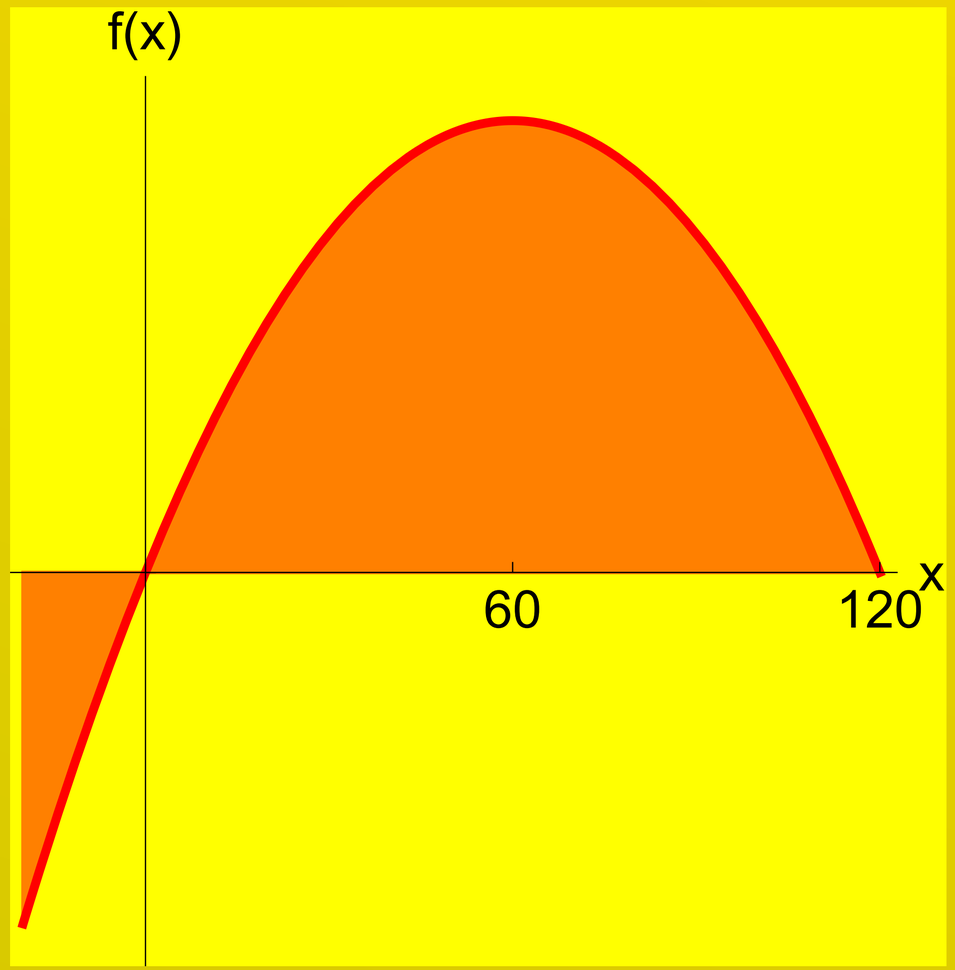

f(x)
−1
1
x

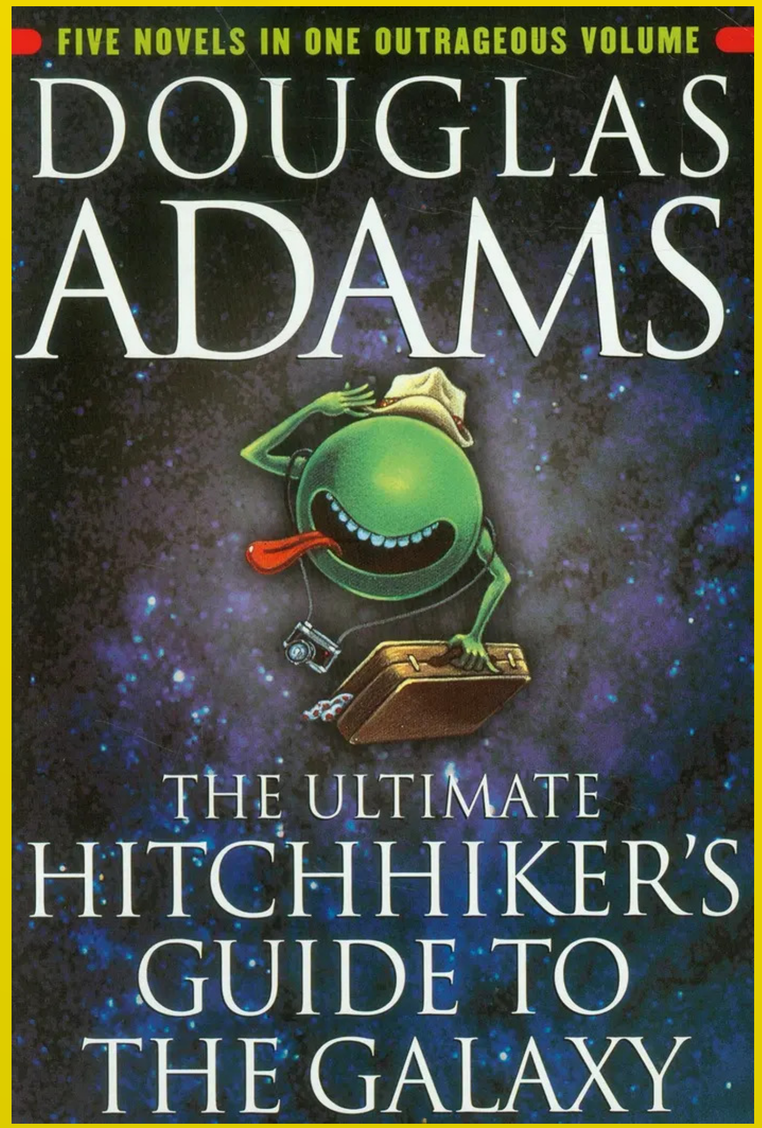

f'(x)
3
2
1
−1
1
x

LIST

f	f'	f''
x^2	$2x$	2
x^3	$3x^2$	$6x$
$\sqrt{x}$	$\frac{1}{2\sqrt{x}}$	$\frac{-1}{4x^{3/2}}$
$\log(x)$	$\frac{1}{x}$	$\frac{-1}{x^2}$
$\exp(x)$	$\exp(x)$	$\exp(x)$

HITCHHIKER'S GUIDE





$$f(x) = 360x - 3x^2$$

THE END