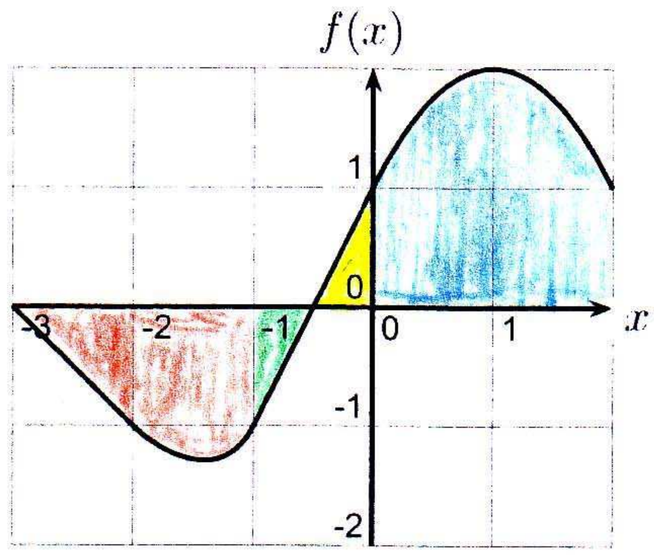
3. (8 points) The graph of a function f is shown below.



Using the information given, write the following numbers in order from least to greatest:

$A = f'(1),$ = slope @ $x=1$ ≈ 2

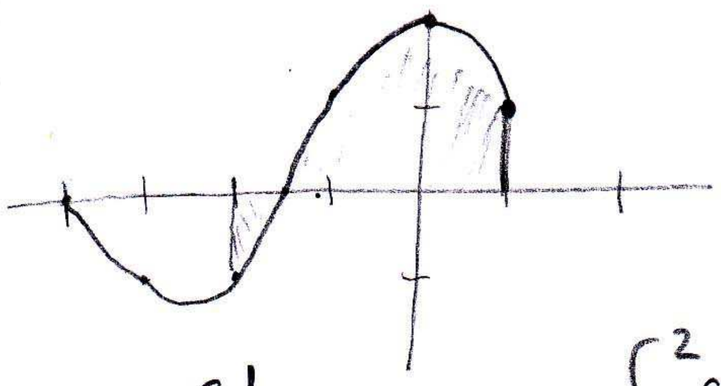
$B = \int_{-3}^{0} f(t)\,dt,$ = - Red - ~~Green~~ + ~~Yellow~~ ≈ -1.75

$C = \int_{-2}^{1} f(t+1)\,dt,$ = - ~~Green~~ + ~~Yellow~~ + Blue ≈ 3.5

$D = \int_{-1}^{2} (f(t)+1)\,dt.$ = $\int_{-1}^{2} f(t)\,dt + \int_{-1}^{2} 1\,dt$

$\approx \underbrace{3.5}_{\text{from part c}} + 3 = 6.5$

$f(t+1)$ is f shifted left 1:



So $\int_{-2}^{1} f(t+1)\,dt = \int_{-1}^{2} f(t)\,dt$

shift limits by 1

B < A < C < D

in general:

$$\int_a^b f(t+c)\,dt = \int_{a+c}^{b+c} f(t)\,dt$$