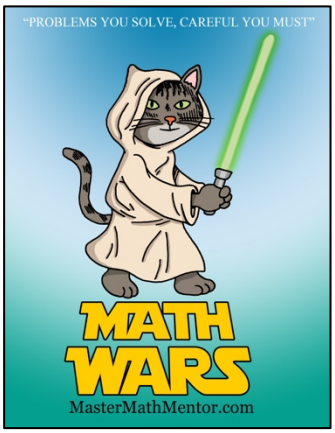
Math Wars – AB Calculus
Scrambled 155 – Limits & Derivatives



Maximum Time: 7.75 Minutes

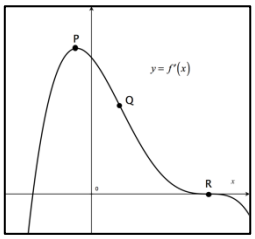
Directions: To start, you need to download the Math Wars application on your cell phone: Use the QR code or the url: https://mastermathmentor.com/mmm/mathwars.ashx?key=155

When ready, start the timer and then solve the problems below, entering your choice, A, B, C, D and pressing Submit for each problem when you are sure of your answer. When complete, stop the timer. You will see problems you got correct in green and incorrect in red. You will receive a score based on how many problems you got right and your time. A perfect score is all problems correct using half the maximum time or less. You can text or email your friends with your results.

1. (1 pt) If $f(x)=\dfrac{x}{\ln x}$, for what value of x does f have a horizontal tangent?

A. 0 B. 1 C. e D. no value

2. (3 pts) The graph to the right is $y=f'(x)$. If $g(x)=x\cdot f'(x)$, determine the signs of $g'(x)$ at points P, Q and R and arrange from highest to lowest.



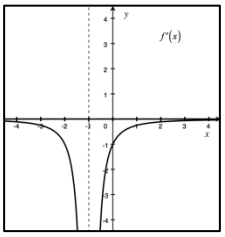
A. P, Q, R B. P, R, Q C. Q, R, P D. R, P, Q

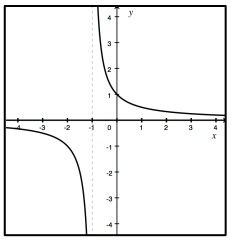
3. (5 pts) If the functions f and g and their derivatives are defined by the table to the right at selected values, and $h(x)=f(g(x))$, find the value of $h'(5)$.

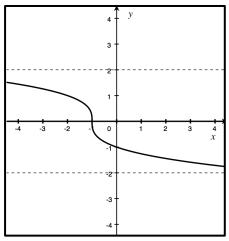
x	$f(x)$	$g(x)$	$f'(x)$	$g'(x)$
5	–1	–5	1/2	4
–5	0	3	–2	–6

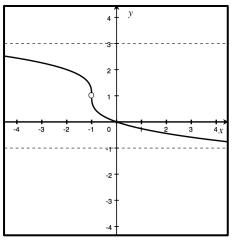
A. 0 B. 2 C. –8 D. –2

4. (7 pts) The graph of $f'(x)$ is shown to the right. Which of the following could be the graph of $f(x)$?



I. 

II. 

III. 

A. I only B. II only C. III only D. I, II and III

5. (9 pts) Find the x-value where the line tangent to $f(x)=x-\sqrt{x}$ is perpendicular to the line $4x+3y=2$.

A. 1 B. $\sqrt{2}$ C. 4 D. $\sqrt{2}/2$