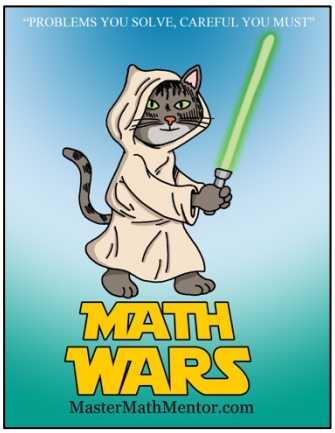
Math Wars – BC Calculus
Scrambled # 271



Maximum Time: 8 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=271

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) Which of the following is a proper partial fraction decomposition?

I. $\dfrac{1}{x^2+16x}=\dfrac{A}{x}+\dfrac{B}{x+16}$ II. $\dfrac{1}{x^2+16x+64}=\dfrac{A}{x+8}+\dfrac{B}{x+8}$ III. $\dfrac{1}{x^3-16x}=\dfrac{A}{x}+\dfrac{B}{x+8}+\dfrac{C}{x-8}$

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

2. (3 pts) For what value of p does the infinite series $\displaystyle\sum_{n=1}^{\infty}\frac{\sqrt[3]{n}}{n^{p/2}}$ converge?

I. $p=1$ II. $p=\dfrac{8}{3}$ III. $p=\dfrac{27}{10}$

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

3. (5 pts) For the polar curve $r=-5\cos\theta$, find $\dfrac{dy}{dx}$ at $\theta=\dfrac{\pi}{4}$.

A. 0 B. 1 C. –1 D. undefined

4. (7 pts) When hot tar is spread on a roof, it comes out of the heating drum at 324° F and immediately begins to cool. The tar can be easily spread when its temperature is between 225° F and 300° F. The tar's temperature is described by the differential equation $\dfrac{dT}{dt}=-0.1\left(T-80\right)$, t measured in minutes. If Euler's method is used with step one minute, to the nearest minute, how many minutes is it easily spread?

A. 3 B. 4 C. 5 D. 6

5. (9 pts) Given $f(x)=\frac{1}{1+x}$. Find the difference between $f(0.5)$ and the 4th degree Taylor Polynomial centered at 0, approximation for $f(0.5)$.

A. 0.021 B. 0.042 C. 1.208 D. 1.271