

This print-out should have 3 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

001 10.0 points

Determine if the improper integral

$$I = \int_0^5 \frac{2 \ln(x)}{x} dx$$

converges, and if it does, compute its value.

1. $I = 2(\ln(5))^2$
2. $I = (\ln(5))^2$
3. I does not converge
4. $I = \ln(5)$
5. $I = 2 \ln(5)$

002 10.0 points

Determine if the improper integral

$$I = \int_0^1 \frac{4 \sin^{-1}(x)}{\sqrt{1-x^2}} dx$$

is convergent or divergent, and if convergent, find its value.

1. $I = \frac{1}{4}\pi^2$
2. I is divergent
3. $I = \frac{1}{2}\pi^2$
4. $I = \frac{1}{4}$
5. $I = \frac{1}{2}$

003 10.0 points

Determine if the integral

$$I = \int_0^2 \frac{2}{(x-1)^{2/3}} dx$$

is convergent or divergent; and if convergent, find its value.

1. $I = 0$
2. $I = 4$
3. $I = 12$
4. $I = 6$
5. I is divergent