

2023 AP Daily: Practice Sessions

AP Calculus BC

Session 5 – MCQ



1. $\int_0^1 \frac{x+4}{(x+1)(x-2)} dx =$

A. $-\frac{1}{2}$

B. $\ln\left(\frac{1}{8}\right)$

C. $\ln(2)$

D. $\ln(8)$

2. Which of the following is true about $\int_4^\infty \frac{5}{\sqrt{x^3}} dx$?

A. The definite integral converges to $-\frac{5}{8}$

B. The definite integral converges to $\frac{15}{64}$

C. The definite integral converges to 5

D. The definite integral diverges.

3. For which of the following values of p do both $\sum_{n=1}^{\infty} \frac{1}{n^{2p-5}}$ and $\sum_{n=1}^{\infty} \left(\frac{p-6}{2}\right)^n$ converge?

A. $p = 1$

B. $p = 3$

C. $p = 7$

D. $p = 8$

4. For $t > 1$, the position of a particle moving in the xy -plane at time t is given by the parametric equations $\langle x(t), y(t) \rangle = \langle e^{3t}, \ln(t) \rangle$. Which of the following is the acceleration vector for the particle at time $t = 2$?

A. $\langle e^6, -\frac{1}{4} \rangle$

B. $\langle 3e^6, \frac{1}{2} \rangle$

C. $\langle 9e^6, -\frac{1}{4} \rangle$

D. $\langle 9e^6, 1 \rangle$

5. $\int_0^3 8xe^{2x} dx =$

A. $18e^6$

B. $10e^6 + 2$

C. $16e^6 - 8$

D. $16e^6 - 32$