
Math Test for B651-B654

Instructions: This “test” is designed to help you decide whether you should enroll in the B651-B654 course or not. If you can easily do this test without consulting a calculus book or if you recognize the method needed to solve the problems you should be able to enroll in the B651-B654 series. If not you should consider other options such as the B621-B624 series.

- (1) Re-express $\ln(ab)$
- (2) Differentiate $\ln(x)$ with respect to x
- (3) Differentiate e^{-x} with respect to x
- (4) Find the maximum of $p^3(1-p)^5$ in the interval $0 \leq p \leq 1$
- (5) Evaluate $\int_0^1 e^{-3x} dx$
- (6) If $0 < a < 1$ evaluate $\sum_{i=0}^{\infty} a^i$
- (7) Calculate $4!$
- (8) Find

$$\lim_{n \rightarrow \infty} \frac{n+6}{n+2}$$

- (9) Find $A \times B$ where

$$A = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 4 & -1 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 2 \\ 2 & 1 \\ 0 & 1 \end{bmatrix}$$

- (10) In (9) find $B^T A^T$ where C^T is the transpose of the matrix C .