

## **MATH-102/02 QUIZ 1**

Q1. Evaluate  $\int_{\pi/4}^{\pi/3} \operatorname{cosec}(\theta)\cotan(\theta)d\theta$

Q2. Find the general indefinite integral  $\int \left(2x^3 - 3e^{-2x} + \frac{1}{\sqrt{1-x^2}}\right) dx$

Q3. The velocity function (m/s) for a particle along a line is  $t^2 - 6t + 8$ . Find (a) the displacement and (b) the distance travelled by the particle during the time interval  $1 \leq t \leq 6$ .

Q4. Using a suitable substitution, evaluate  $\int_{e^2}^{e^6} \frac{dx}{3x\sqrt{\ln(x)}}$ .

Q5. Find, (a)  $\frac{d}{dx} \left\{ \int 2x \frac{dx}{1+x^2} \right\}$ , (b)  $\frac{d}{dx} \left\{ \int 2 \frac{dx}{1+x^2} \right\}$