

**DIFFERENTIATION & APPLICATIONS (Q 6 & 7, PAPER 1)**

**LESSON NO. 5: INVERSE TRIGONOMETRIC DIFFERENTIATION**

**2005**

6 (a) Differentiate with respect to  $x$

(ii)  $\sin^{-1}\left(\frac{x}{5}\right)$ .

**2004**

6 (b) (i) Given  $y = \tan^{-1} x$ , find the value of  $\frac{dy}{dx}$  at  $x = \sqrt{2}$ .

**2003**

7 (a) Differentiate with respect to  $x$ :

(ii)  $\sin^{-1}\left(\frac{x}{5}\right)$ .

**2002**

7 (b) (i) Given that  $y = \sin^{-1} 10x$ , evaluate  $\frac{dy}{dx}$  when  $x = \frac{1}{20}$ .

**2001**

7 (b) (i) Differentiate  $\tan^{-1} 7x$  with respect to  $x$ .

**ANSWERS**

**2005** 6 (a) (ii)  $\frac{1}{\sqrt{25-x^2}}$

**2002** 7 (b) (i)  $\left(\frac{dy}{dx}\right)_{x=\frac{1}{20}} = \frac{20}{\sqrt{3}}$

**2004** 6 (b) (i)  $\left(\frac{dy}{dx}\right)_{x=\sqrt{2}} = \frac{1}{3}$

**2001** 7 (b) (i)  $\frac{dy}{dx} = \frac{7}{1+49x^2}$

**2003** 7 (a) (ii)  $\frac{dy}{dx} = \frac{1}{\sqrt{25-x^2}}$