

Cambridge International AS & A Level

Mathematics 9709

Paper 1 Pure Mathematics 1

Topic 5-Trigonometry

Question No (3)

<http://kingcambridgesolutions.com>

WhatsApp +923454231525

Rs:300/Paper

Question No (3)

Given that $x = \sin^{-1}\left(\frac{2}{5}\right)$, find the exact value of

(i) $\cos^2 x$,

(ii) $\tan^2 x$.

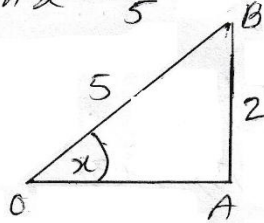
Solution

On Next page

(i)

$$x = \sin^{-1}\left(\frac{2}{5}\right)$$

$$\sin x = \frac{2}{5}$$



$$\sin \theta = \frac{\text{vertical}}{\text{hypotenuse}}$$

$$OA = \sqrt{(5)^2 - (2)^2}$$

$$= \sqrt{25 - 4}$$

$$OA = \sqrt{21}$$

By Pythagoras
Theorem

$$\text{now } \cos x = \frac{OA}{OB}$$

$$\cos x = \frac{\sqrt{21}}{5}$$

$$\cos^2 x = \frac{21}{25} \quad \text{Ans}$$

(ii)

$$\tan x = \frac{\text{vertical}}{\text{Base}}$$

$$= \frac{2}{\sqrt{21}}$$

$$\tan^2 x = \frac{4}{21} \quad \text{Ans}$$

