11 Solve the following simultaneous equations, giving your answers in exact form.

$$8\log_3 x + 12\log_{81} y = 5$$

$$4\log_9 x + 3\log_3 y = 2$$ [6]

12 Solve the equation $\sec\left(3\theta - \frac{\pi}{2}\right) = 2$ for $-\frac{\pi}{2} \leqslant \theta \leqslant \frac{\pi}{2}$. Give your answers in exact form. [5]

© UCLES 2024