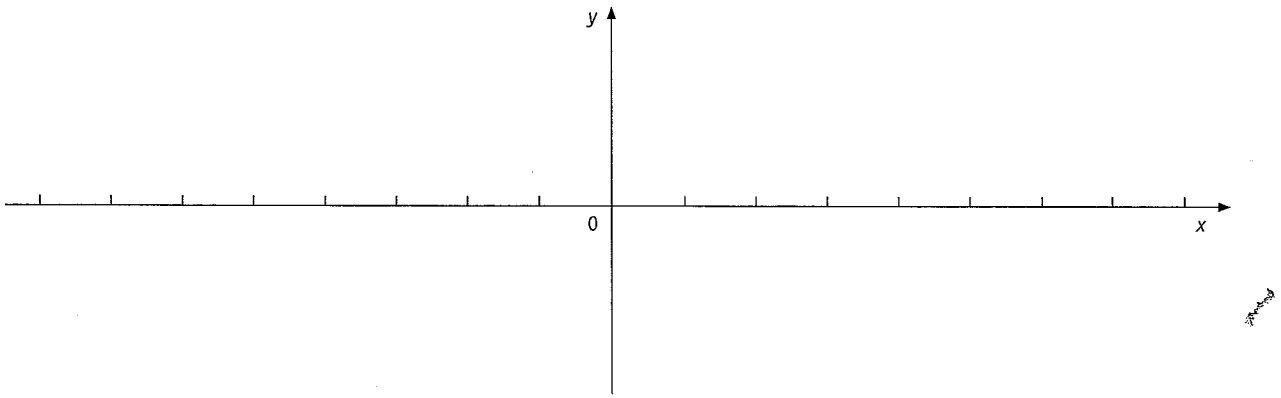
Using graphs to solve equations (1)

QUESTION **1**

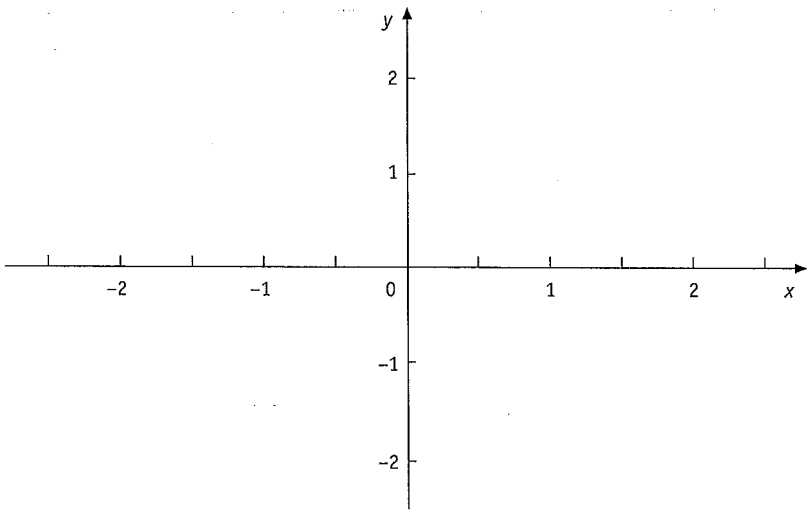
a On the same diagram sketch the graphs of $y = 2\cos x$ and $y = \sin 2x$ for $-2\pi \leq x \leq 2\pi$



b Write down all solutions of the equation $2\cos x = \sin 2x$, $-2\pi \leq x \leq 2\pi$

QUESTION **2**

a On the given diagram sketch the graphs of $y = \sin \pi x$ and $y = 2x$



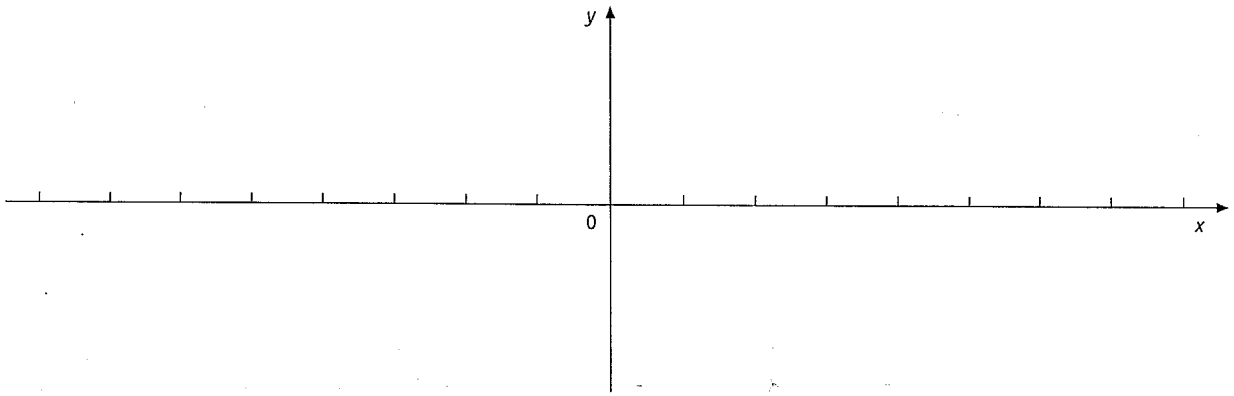
b Write down all solutions of the equation $\sin \pi x = 2x$

The trigonometric functions

Using graphs to solve equations (2)

QUESTION **1**

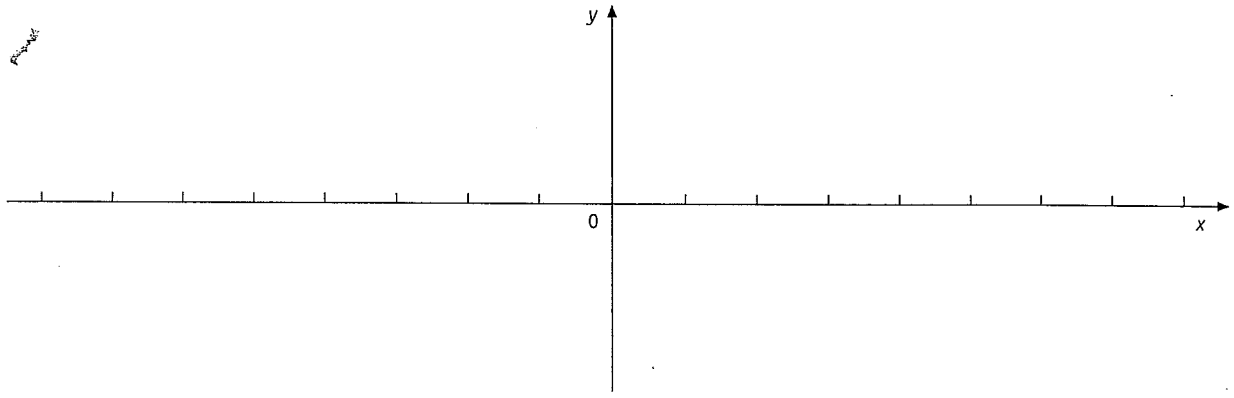
a Sketch the graph of $y = \cos\left(x + \frac{3\pi}{2}\right)$



b For what values of x does $\cos\left(x + \frac{3\pi}{2}\right) = \sin x$?

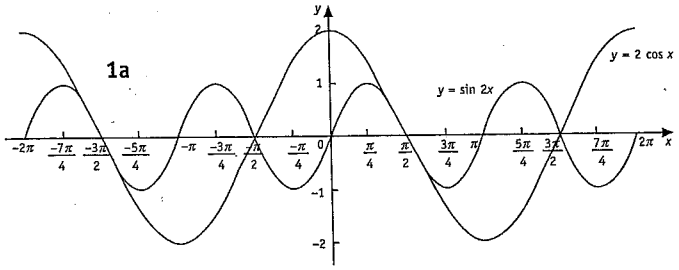
QUESTION **2**

a On the given diagram sketch $y = \tan x$ and $y = \cot x$

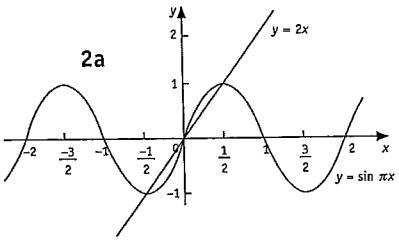


b For what values of x does $\tan x = \cot x$?

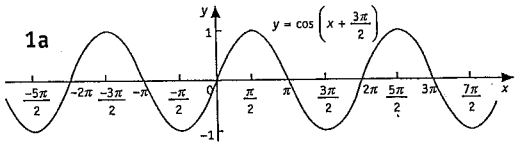
Page 79 **1** **a** (below) **b** $x = -\frac{3\pi}{2}, -\frac{\pi}{2}, \frac{\pi}{2}$ or $\frac{3\pi}{2}$



2 **a** (below) **b** $x = -\frac{1}{2}, 0$ or $\frac{1}{2}$



Page 80 **1** **a** (below) **b** all values of x



2 **a** (below) **b** $x = \pm\frac{\pi}{4}, \pm\frac{3\pi}{4}, \pm\frac{5\pi}{4}, \pm\frac{7\pi}{4}, \ldots$