

Introduction To Trigonometric Equations Exam Questions

Q1, (OCR 4752, Jan 2005, Q3)

Sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

Solve the equation $\sin x = -0.2$ for $0^\circ \leq x \leq 360^\circ$. [4]

Q2, (OCR 4752, Jun 2005, Q8)

(i) Solve the equation $\cos x = 0.4$ for $0^\circ \leq x \leq 360^\circ$.

(ii) Describe the transformation which maps the graph of $y = \cos x$ onto the graph of $y = \cos 2x$. [5]

Q3, (OCR 4752, Jan 2006, Q5)

(i) Sketch the graph of $y = \tan x$ for $0^\circ \leq x \leq 360^\circ$. [2]

(ii) Solve the equation $4 \sin x = 3 \cos x$ for $0^\circ \leq x \leq 360^\circ$. [3]

Q4, (OCR 4752, Jun 2006, Q7)

(i) Sketch the graph of $y = \cos x$ for $0^\circ \leq x \leq 360^\circ$.

On the same axes, sketch the graph of $y = \cos 2x$ for $0^\circ \leq x \leq 360^\circ$. Label each graph clearly. [3]

(ii) Solve the equation $\cos 2x = 0.5$ for $0^\circ \leq x \leq 360^\circ$. [2]

Q5, (OCR 4722, Jun 2013, Q2)

Solve each of the following equations, for $0^\circ \leq x \leq 360^\circ$.

(i) $\sin \frac{1}{2}x = 0.8$ [3]

(ii) $\sin x = 3 \cos x$ [3]

Q6, (OCR 4722, Jun 2016, Q9i,ii)

A curve has equation $y = \sin(ax)$, where a is a positive constant and x is in radians.

(i) State the period of $y = \sin(ax)$, giving your answer in an exact form in terms of a . [1]

(ii) Given that $x = \frac{1}{5}\pi$ and $x = \frac{2}{5}\pi$ are the two smallest positive solutions of $\sin(ax) = k$, where k is a positive constant, find the values of a and k . [3]
