



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]

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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]

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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]

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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]

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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]

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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]

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