TRIG GRAPHS PPQ's (Solutions)

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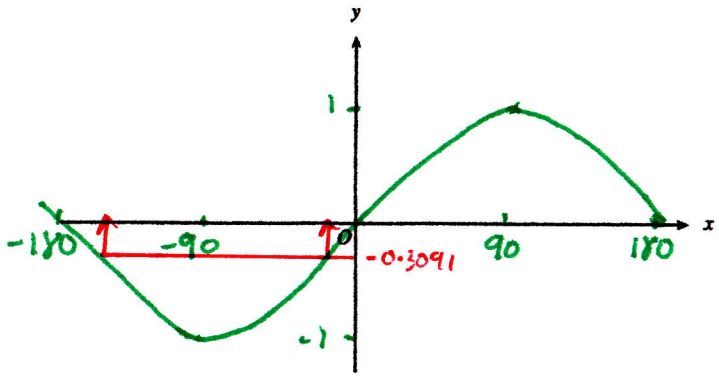
1 *(a)* Using the axes below, **sketch** the graph of $y = \sin x$ for values of x from $-180°$ to $180°$. [2]



(b) Find all solutions of the following equation in the range $-180°$ to $180°$.

$\sin x = -0·3091$

From calculator $x = \sin^{-1}(-0.3091) = -18°$

2nd angle $-180° + 18° = -162°$

Check $\sin(-162) = -0.309\ldots$ ✓

[2]

(018206)

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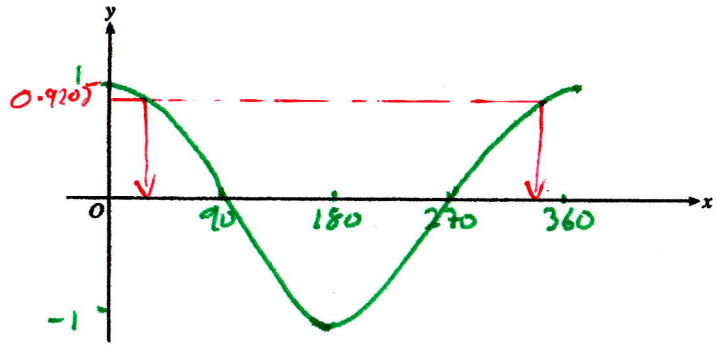
2 *(a)* Using the axes below, **sketch** the graph of $y = \cos x$ for values of x from $0°$ to $360°$. [2]



(b) Find all solutions of the following equation in the range $0°$ to $360°$.

$\cos x = 0·9205$

From calculator $x = \cos^{-1}(0.9205) = 23°$

From graph $x = 360 - 23 = 337°$

Check $\cos(337) = 0.9205$ ✓

[2]

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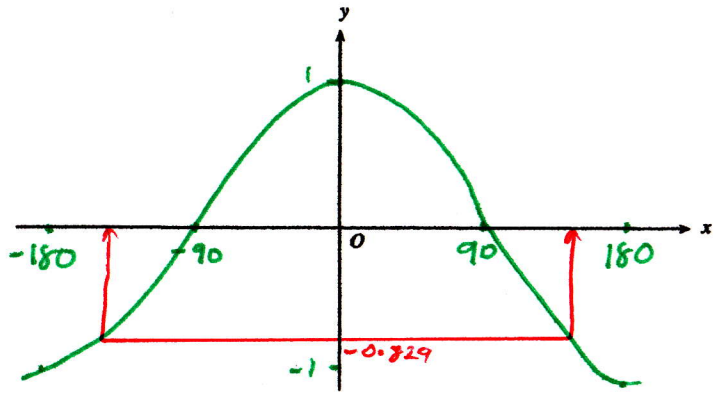
3

(a) Using the axes below, **sketch** the graph of $y = \cos x$ for values of x from $-180°$ to $180°$. [2]



(b) Find all solutions of the following equation in the range $-180°$ to $180°$.

$\cos x = -0{\cdot}829$

From calculator $x = \cos^{-1}(-0{\cdot}829) = 146°$

From graph (symmetry) $x = -146°$

Check $\cos(-146) = -0{\cdot}829$ ✓

[2]

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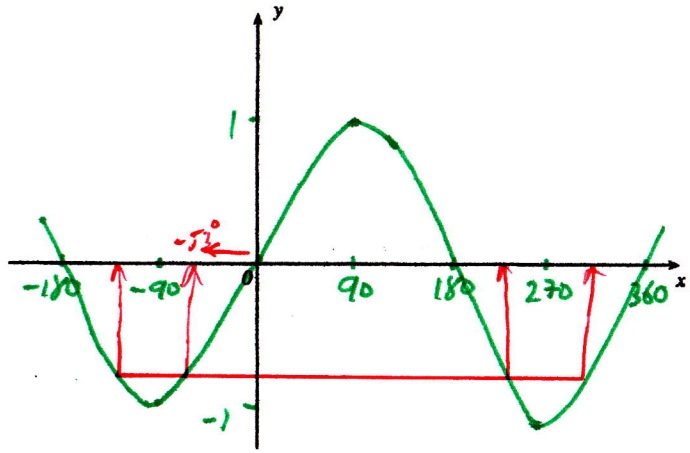
4

(a) Using the axes below, **sketch** the graph of $y = \sin x$ for values of x from $-180°$ to $360°$.

[2]



(b) Find all solutions of the following equation in the range $-180°$ to $360°$.

$\sin x = -0{\cdot}8$

From calculator $x = \sin^{-1}(-0{\cdot}8) = -53°$

From graph $x = -180 + 53 = -127°$

$x = 180 + 53 = 233°$

$x = 360 - 53 = 307°$.

[3]

Turn over.

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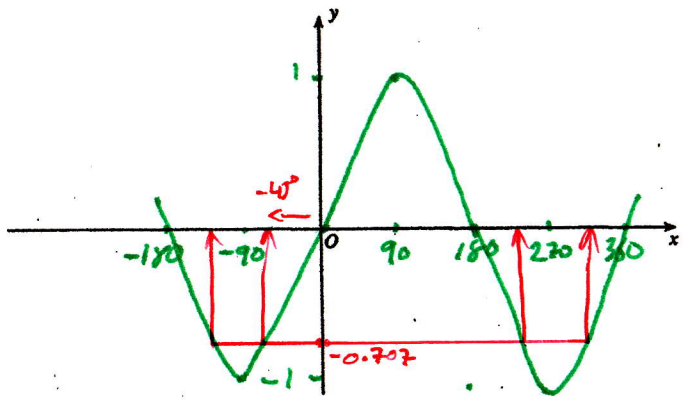
5 (a) Using the axes below, sketch the graph of $y = \sin x$ for values of x from $-180°$ to $360°$. [2]



(b) Find all solutions of the following equation in the range $-180°$ to $360°$.

$\sin x = -0{\cdot}707$

From calculator $x = \sin^{-1}(-0.707) = -45°$

From graph

$x = -180 + 45 = -135$

$x = 180 + 45 = 225$

$x = 360 - 45 = 315$

[3]

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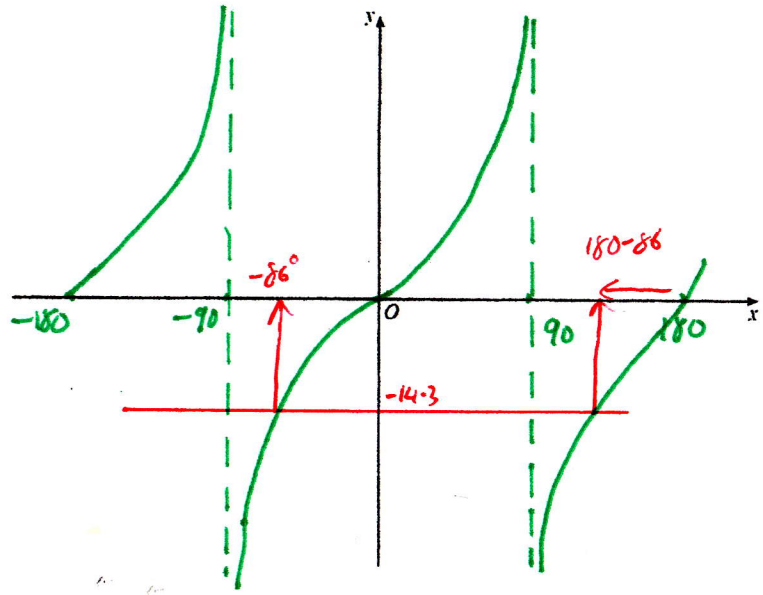
6 (a) Using the axes below, sketch the graph of $y = \tan x$ for values of x from $-180°$ to $180°$. [3]



(b) Find all solutions of the following equation in the range $-180°$ to $180°$.

$\tan x = -14{\cdot}3$

From calculator $x = \tan^{-1}(-14.3) = -86°$

From graph $x = 180 - 86 = 94°$

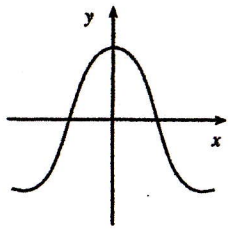
check $\tan 94 = -14.3$ ✓

[2]

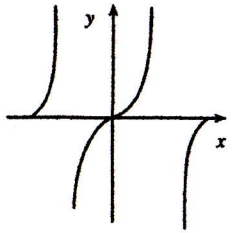
Non-Calc

(7) Sketches of three graphs labelled A, B and C are shown below.

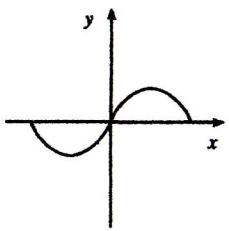
A



B



C



Complete the following table matching each function with the appropriate graph.

Function	Graph
$y = \cos x$	A
$y = \sin x$	C
$y = \tan x$	B

[2]

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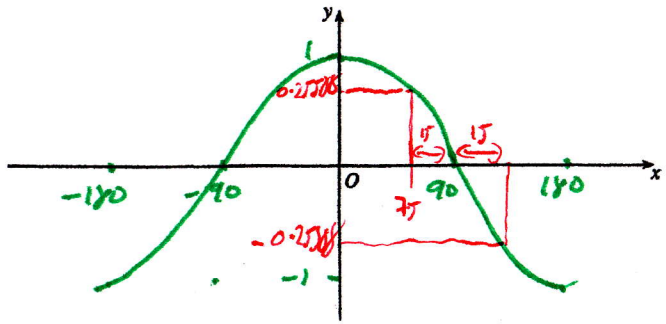
(0184/7)

Non-Calc

(8) (a) Using the axes below, sketch the graph of $y = \cos x$ for values of x from $-180°$ to $180°$. [2]



(b) Write down the value of

(i) $\cos 0°$,

1

[1]

(ii) $\cos 90°$.

0

[1]

(c) Given that $\cos 75° = 0·2588$, write down a value of angle A for which $\cos A = -0·2588$.

From symmetry $A = 90 + 15 = 105°$

[1]

15. Given that w is directly proportional to f^2, and that $w = 100$ when $f = 5$,

(a) find an expression for w in terms of f,

$w \propto f^2$

$w = kf^2$

when $w = 100$, $f = 5$ $\quad 100 = k \times 5^2$

$k = \frac{100}{25} = 4$

$\therefore w = 4f^2$

[3]

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(0184/7)