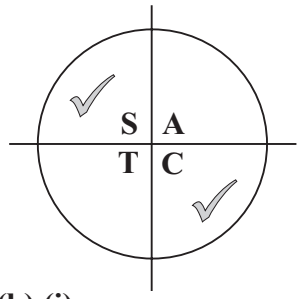
Sample Paper 1: Paper 2

Question 3 (25 marks)

Question 3 (a) (i)



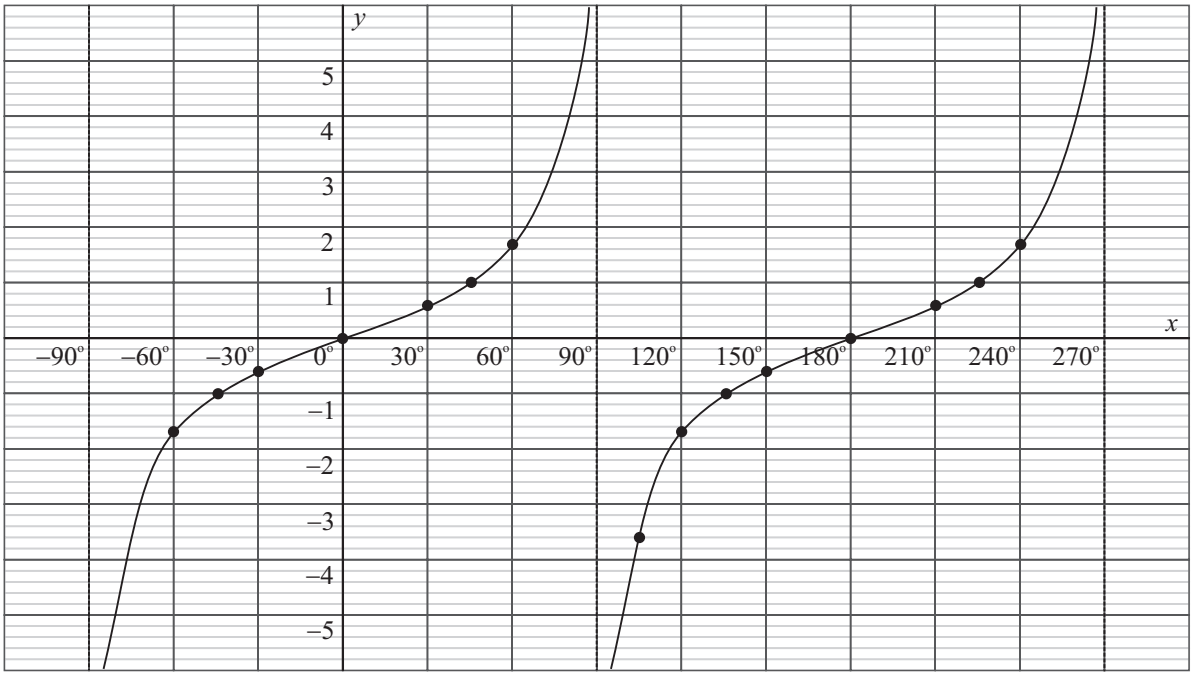
Question 3 (a) (ii)

$$\begin{aligned}&\tan 330^\circ \\ &= \tan(360^\circ - 30^\circ) \\ &= -\tan 30^\circ \\ &= -\frac{1}{\sqrt{3}}\end{aligned}$$

Question 3 (b) (i)

x°	–90	–60	–45	–30	0	30	45	60	90
y	$-\infty$	–1.7	–1	–0.6	0	0.6	1	1.7	∞

x°	105	120	135	150	180	210	225	240	270
y	–3.7	–1.7	–1	–0.6	0	0.6	1	1.7	$-\infty$



Question 3 (b) (ii)

Yes, because each value of x only gives one value of y.

Question 3 (b) (iii)

Period = 180° (function repeats itself every 180°)
Range = $[-\infty, \infty]$

Question 3 (b) (iv)

$\tan x = \sqrt{3} \Rightarrow x = \tan^{-1}(\sqrt{3}) = 60^\circ$

Second quadrant: $x = 180^\circ - 60^\circ = 120^\circ$
Fourth quadrant: $x = 360^\circ - 60^\circ = 300^\circ$