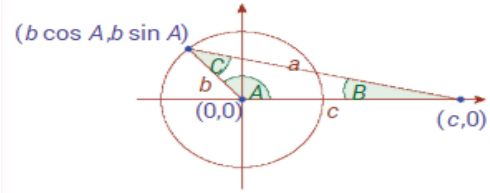
Q4	Model Solution – 25 Marks	Marking Notes
(a)	 $Using\ the\ points\ (c,o)\ and\ (b\ cosA, b\ sinA)$ And the distance formula: $$a = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$ $$a = \sqrt{(bcosA - c)^2 + (bsinA - 0)^2}(square\ both\ sides)$$ $$a^2 = (bcosA - c)^2 + (bsinA - 0)^2 \text{ (square brackets)}$$ $$a^2 = b^2cos^2A - 2bccosA + c^2 + b^2sin^2A$$ $$a^2 = b^2(cos^2A + sin^2A) + c^2 - 2bccosA + c^2$$ $$a^2 = b^2(1) + c^2 - 2bccosA + c^2$$ $$\therefore a^2 = b^2 + c^2 - 2bccosA$$ $$(cos^2A + sin^2A = 1)$$	MS (0, 5, 10, 15) LPC: Work of merit eg any correct substitution into the distance formula HPC: 1 or 2 mistakes
(b)	$a^2 = b^2 + c^2 - 2bccosA$ (from part a) $b^2 = a^2 + c^2 - 2accosB$ (swap a and b from part a) $$Now\ subtract\ a^2 from\ b^2$$ $b^2 - a^2 = a^2 - b^2 - 2accosB + 2bccosA$ HPC $$b^2 - a^2 - a^2 + b^2 = -2accosB + 2bccosA$$ $$2b^2 - 2a^2 = -2accosB + 2bccosA$$ $$2(b^2 - a^2) = 2bccosA - 2accosB$$ $$b^2 - a^2 = c(bcosA - acosB)$$	MS (0, 4, 8, 10) LPC: Work of merit like rewriting the cosine rule as $b^2 = a^2 + c^2 - 2accosB$ HPC: 1 or 2 mistakes