International GCSE Further Pure Mathematics – Paper 1 mark scheme

Question number	Scheme	Marks
1 (a)	$t = \frac{10}{3}$ $P = 3 + 2\sin\frac{5\pi}{4}$ $= 3 - \sqrt{2}$ oe (e.g. $3 - \frac{2}{\sqrt{2}}$)	M1 A1 (2)
(b) (i)	5	B1
(ii)	1	B1 (2)
(c)	$4 = 3 + 2\sin\left(\frac{3\pi t}{8}\right)$ $\frac{1}{2} = \sin\left(\frac{3\pi t}{8}\right)$ $\frac{\pi}{6} = \left(\frac{3\pi t}{8}\right)$ $t = \frac{4}{9}$ oe	M1 M1 A1 (3)
		[7]

Part	Mark	Additional Guidance
(a)	M1	Correct substitution of $t = \frac{10}{3}$, leading to a value for P, simplification not required.
	A1	Answer stated, oe exact value.
(c)	M1	Correctly substitutes the value of $P = 4$ and rearranges to give an expression of the form $a = \sin\left(\frac{3\pi t}{8}\right)$ **Do not allow this mark if $a > 1$ or $a < -1$**
	M1	Correctly uses the inverse sin function to arrive at $b = \left(\frac{3\pi t}{8}\right)$ and solves to find a value of $\frac{3\pi t}{8}$, allow this value to be in degrees If the inverse sin function is not shown, then the value of the angle obtained must be correct for their *b*.
	A1	oe