Year 2 Pure Chapter 7: Addition Formula - Exam Questions (21 marks)

1. (a) Show that $\tan(45° + \theta) =$ **(2 marks)**

(b) Hence obtain the exact value of $\tan 105°$ in the form $a + b$, where a and b are integers to be found.

(3 marks)

2. (a) Show that $\sin(\alpha + \beta) + \sin(\alpha - \beta) \equiv 2 \sin \alpha \cos \beta$

(3 marks)

3. (a) Use the identity $\sin(A + B)$ $\sin A \cos B + \cos A \sin B$ to show that

2 sin

(2 marks)

(b) Show that the equation 2 sin

can be written in the form 3 tan x + = 0

(3 marks)

(c) Hence, solve the equation

2 sin

giving all solutions in terms of π in the interval $0 < x < 2\pi$.

(3 marks)

4. (a) Use the identity $\cos(A + B) = \cos A \cos B - \sin A \sin B$

to show that the equation cos = sin x

can be written as $\cos x + \sin x = 0$

(2 marks)

(b) Hence solve the equation $\cos = \sin x$

giving all solutions, in terms of π, in the interval $0 < x < 2\pi$.

(3 marks)