FP1 Trigonometry Questions

3 Find the general solution, in **degrees**, for the equation

$$\sin(4x + 10°) = \sin 50°$$

(5 marks)

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4 Find, in **radians**, the general solution of the equation

$$\cos 3x = \frac{\sqrt{3}}{2}$$

giving your answers in terms of π.

(5 marks)

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7 The function f is defined for all real numbers by

$$f(x) = \sin\left(x + \frac{\pi}{6}\right)$$

(a) Find the general solution of the equation $f(x) = 0$.

(3 marks)

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6 Find the general solution of the equation

$$\sin\left(2x - \frac{\pi}{2}\right) = \frac{\sqrt{3}}{2}$$

giving your answer in terms of π.

(6 marks)

FP1 Trigonometry Answers

3	One solution is $x = 10°$	B1		PI by general formula
	Use of $\sin 130° = \sin 50°$	M1		OE
	Second solution is $x = 30°$	A1		OE
	Introduction of $90n°$, or $360n°$ or $180n°$	M1		Or $\pi n/2$ or $2\pi n$ or πn
	GS $(10 + 90n)°, (30 + 90n)°$	A1√	5	OE; ft one numerical error or omission of 2nd soln
	Total		**5**	

4	$\cos \dfrac{\pi}{6} = \dfrac{\sqrt{3}}{2}$ stated or used	B1		Condone decimals and/or degrees until final mark
	Appropriate use of $\pm$	B1		
	Introduction of $2n\pi$	M1		
	Division by 3	M1		Of $\alpha + kn\pi$ or $\pm \alpha + kn\pi$
	$x = \pm \dfrac{\pi}{18} + \dfrac{2}{3} n\pi$	A1	5	
	Total		**5**	

7(a)	Particular solution, eg $-\dfrac{\pi}{6}$ or $\dfrac{5\pi}{6}$	B1		Degrees or decimals penalised in 3rd mark only
	Introduction of $n\pi$ or $2n\pi$	M1		
	GS $\quad x = -\dfrac{\pi}{6} + n\pi$	A1F	3	OE(accept unsimplified); ft incorrect first solution

6	One value of $2x - \dfrac{\pi}{2}$ is $\dfrac{\pi}{3}$	B1		OE (PI); degrees/decimals penalised in 6th mark only
	Another value is $\pi - \dfrac{\pi}{3} = \dfrac{2\pi}{3}$	B1F		OE (PI); ft wrong first value
	Introduction of $2n\pi$ or $n\pi$	M1		
	General solution for x	m1		
	GS $x = \dfrac{5\pi}{12} + n\pi$ or $x = \dfrac{7\pi}{12} + n\pi$	A2,1	6	OE; A1 if one part correct
	Total		**6**	