4037 Additional Mathematics Paper 2 - Trigonometry

Topical questions | 9 questions

1. Question part 1/2 | 4037 May-June 2025 P2 V1 Q8

8 **(a)** Solve the equation $(2-3\cot x)\cos x = 0$ for $0 < x \leqslant \frac{\pi}{2}$. [3]

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1. Question part 2/2 | 4037 May-June 2025 P2 V1 Q8

(b) Solve the equation $2\operatorname{cosec}(2\theta+1)-12\sin(2\theta+1)=5$, where θ is in radians and $-1 \leqslant \theta \leqslant 2$. [6]

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2. Question part 1/2 | 4037 May-June 2025 P2 V2 Q9

9 **(a)** Solve the equation $3\sec 3x = \sqrt{3}\operatorname{cosec} 3x$ for $-120° \leqslant x \leqslant 120°$. [5]

2. Question part 2/2 | 4037 May-June 2025 P2 V2 Q9

(b) Solve the equation $2\cos\left(y+\frac{\pi}{3}\right)\sin\left(y+\frac{\pi}{3}\right)=\sin\left(y+\frac{\pi}{3}\right)$ for $0 \leqslant y < 2\pi$. [5]

Question 10 is printed on the next page.

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3. Question part 1/2 | 4037 Oct-Nov 2025 P2 V2 Q11

11 **(a)** Solve the equation $\tan^2 2x - 4\tan 2x = 0$ for $0° \leqslant x \leqslant 180°$. [4]

3. Question part 2/2 | 4037 Oct-Nov 2025 P2 V2 Q11

(b) Solve the equation $\operatorname{cosec}(y+1.2)=4$, where y is in radians and $-5<y<2$. [6]

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4. Question | 4037 Oct-Nov 2025 P2 V3 Q7

7 Solve the equation $\sec^2 3x + \tan 3x - 3 = 0$ for $0° \leqslant x \leqslant 120°$. [6]

5. Question | 4037 Specimen 2025 P2 Q8

8 **(a)** **(i)** Show that $\frac{\cos^2 2x}{1+\sin 2x} = 1 - \sin 2x$. [2]

(ii) Hence solve the equation for $\frac{3\cos^2 2x}{1+\sin 2x} = 1$ for $0° \leqslant x \leqslant 90°$. [4]

(b) Solve the equation $\cot\left(y - \frac{\pi}{2}\right) = \sqrt{3}$, where y is in radians and $0 \leqslant y \leqslant \pi$. [3]

6. Question part 1/2 | 4037 Specimen 2025 P2 V2 Q7

7 **(a)** Show that $\frac{\cos x}{1-\sin x}+\frac{\cos x}{1+\sin x}$ can be written as $2\sec x$. [4]

(b) **(i)** Solve the equation $5\cos x - 4\sin x = 0$ for $-180° \leqslant x \leqslant 180°$. [3]

6. Question part 2/2 | 4037 Specimen 2025 P2 V2 Q7

(ii) Solve the equation $10\sin^2 2x - 9 = 3\cos 2x$ for $0 \leqslant x \leqslant \pi$. [5]

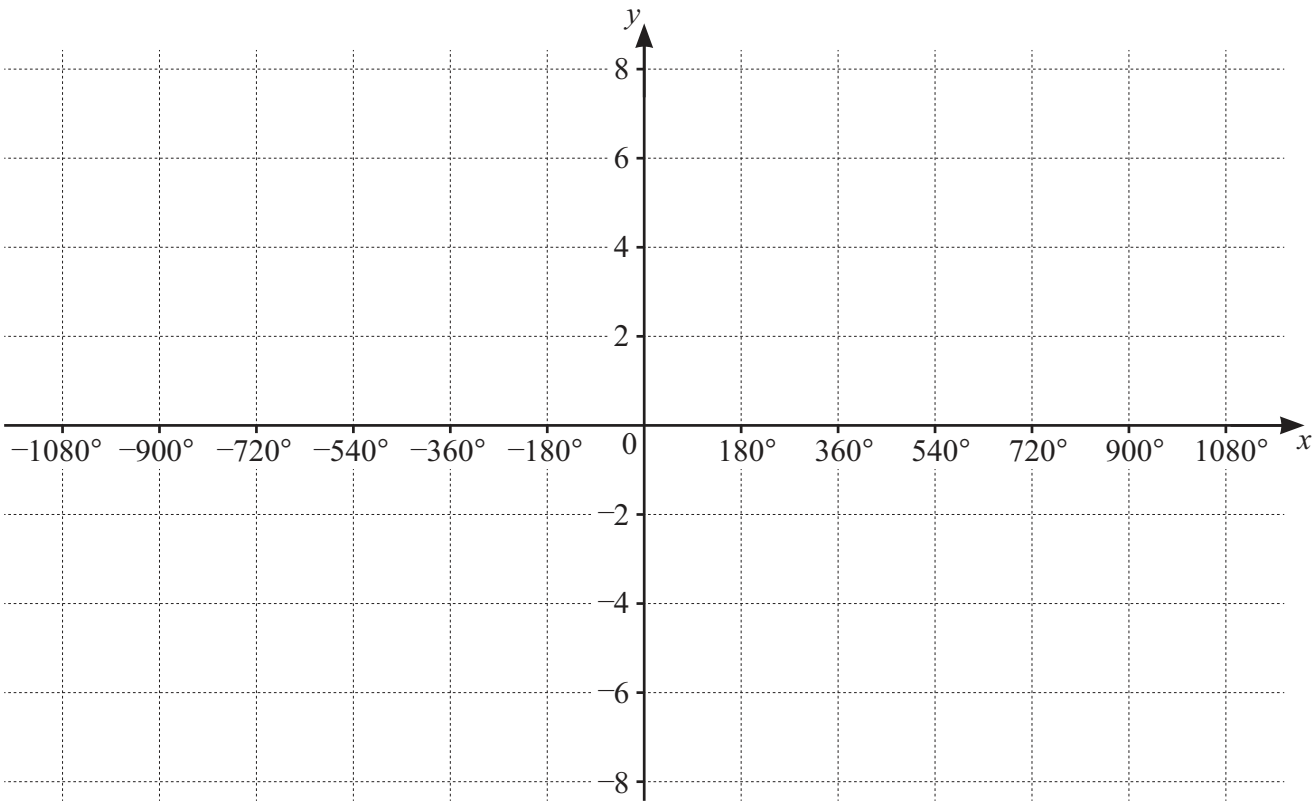
7. Question | 4037 May-June 2026 P2 V1 Q2

2 **(a)** Write down the amplitude of $4\cos\left(\frac{x}{8}\right)+2$. [1]

(b) Write down the period, in degrees, of $4\cos\left(\frac{x}{8}\right)+2$. [1]

(c) Solve the equation $4\cos\left(\frac{x}{8}\right)+2=0$ for $-1080° \leqslant x \leqslant 1080°$. [3]

(d) On the axes sketch the graph of $y=4\cos\left(\frac{x}{8}\right)+2$ for $-1080° \leqslant x \leqslant 1080°$. [2]



8. Question | 4037 May-June 2026 P2 V1 Q9

9 Solve the equation $5-2\operatorname{cosec}(\theta-0.5)=0$ where θ is in radians and $-3.5 \leqslant \theta \leqslant 3.5$. [5]

9. Question | 4037 May-June 2026 P2 V2 Q10

10 Solve the equation $\tan(3x+1) = 5\sin(3x+1)$ for $-\frac{\pi}{3} < x < \frac{\pi}{3}$. [6]