Using the Addition Formulae

Specification: AQA 7357: E3, E6 · Edexcel 9MA0: 5.3, 5.6

HOMEWORK Consolidation

1 Find the exact value of $\cos 165°$.

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2 Find the exact value of $\sin \frac{\pi}{12}$.

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3 Find the exact value of $\tan 75°$ in the form $a + b\sqrt{3}$.

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4 $\cos A = \frac{2}{3}$ and $270° < A < 360°$. Find the exact values of $\sin A$ and $\tan A$.

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5 $\sin A = \frac{1}{3}$ and $\cos B = \frac{1}{2}$, where A and B are acute. Find the exact value of $\cos(A + B)$.

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6 $\tan A = \frac{3}{4}$ and $\tan B = \frac{5}{12}$. Find the exact value of $\tan(A + B)$.

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7 $\sin x = \frac{3}{5}$ and x is obtuse. Find the exact value of $\sin(x + 30°)$.

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8 Given that $\sin(x - y) = 4\cos(x + y)$, express $\tan x$ in terms of $\tan y$.

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9 Given that $\tan(x + \frac{\pi}{4}) = 5$, find the exact value of $\tan x$.

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10 Show that $\sin 105° - \cos 105° = \frac{\sqrt{6}}{2}$.

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11 *AQA-style.* A and B are acute angles with $\tan A = \frac{1}{7}$ and $\tan B = \frac{3}{4}$.

(a) Find the exact value of $\tan(A + B)$. [2 marks]

(b) Hence find $A + B$. [2 marks]

(c) Find the exact value of $\cos(A - B)$. [3 marks]

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12 *Edexcel-style.*

(a) Given that $2\sin(x + 30°) = \cos(x - 60°)$, show that $\tan x = -\frac{\sqrt{3}}{3}$. [4 marks]

(b) Hence solve $2\sin(x + 30°) = \cos(x - 60°)$ for $0° \le x < 360°$. [2 marks]

AQA E6, E7 · Edexcel 5.6, 5.7 · Edexcel-style