

Exercise 2025-12 EJ-00003(1) Trigonometry – Compound angles

(1) Write the following in expanded form and simplify where possible:

[Without using a calculator.]

(a) $\sin(\theta + 45^\circ)$

(b) $\cos(P + 30^\circ)$

(c) $\sin(60^\circ - y)$

(2) Express the following as a single trigonometrical function and simplify:

(a) $\cos \alpha \cdot \cos 3\alpha - \sin \alpha \cdot \sin 3\alpha$

(b) $\sin 20^\circ \cdot \cos 30^\circ + \cos 20^\circ \cdot \sin 30^\circ$

(c) $\cos 3A \cdot \sin 2A - \sin 3A \cdot \cos 2A$

(3) Calculate the value of the following without using a calculator:

(a) $\cos 95^\circ \cdot \sin 5^\circ - \sin 95^\circ \cdot \cos 5^\circ$

(b) $\sin 33^\circ \cdot \cos 12^\circ + \cos 33^\circ \cdot \sin 12^\circ$

(c) $\cos 155^\circ \cdot \cos 35^\circ + \sin 155^\circ \cdot \sin 35^\circ$

(d) $\sin 40^\circ \cdot \cos 10^\circ - \cos 40^\circ \cdot \cos 80^\circ$