

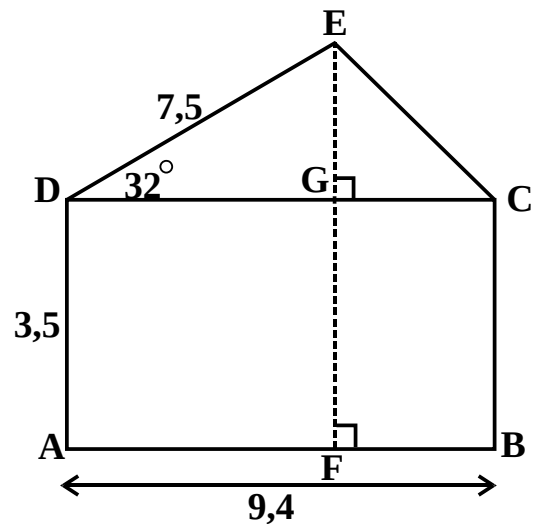
Exercise 2025-12 EJ-00011(3) Revision from past papers

- (1) If $\sin 28^\circ = a$ and $\cos 32^\circ = b$, determine the following in terms of a and/or b : (2)
- (a) $\cos 28^\circ$ (3)
- (b) $\cos 64^\circ$ (4)
- (c) $\sin 4^\circ$
- (2) Prove without the use of a calculator, that if $\sin 28^\circ = a$ and $\cos 32^\circ = b$, (4)
- then: $b\sqrt{1 - a^2} - a\sqrt{1 - b^2} = \frac{1}{2}$
- (3) Evaluate each of the following without using a calculator. Show ALL working.
- (a) $\frac{\sin 130^\circ \cdot \tan 60^\circ}{\cos 540^\circ \cdot \tan 230^\circ \cdot \sin 400^\circ}$ (7)
- (b) $(1 - \sqrt{2} \sin 75^\circ)(\sqrt{2} \sin 75^\circ + 1)$ (4)
- (4) Determine the general solution of: $\sin^2 x + \cos 2x - \cos x = 0$ (7)
- (5) Consider: $\frac{\cos 2x \cdot \tan x}{\sin^2 x}$
- (a) For which values of $x \in [0^\circ; 180^\circ]$, will this expression be undefined? (3)
- (b) Prove that: $\frac{\cos 2x \cdot \tan x}{\sin^2 x} = \frac{\cos x}{\sin x} - \tan x$ for all other values of x . (5)

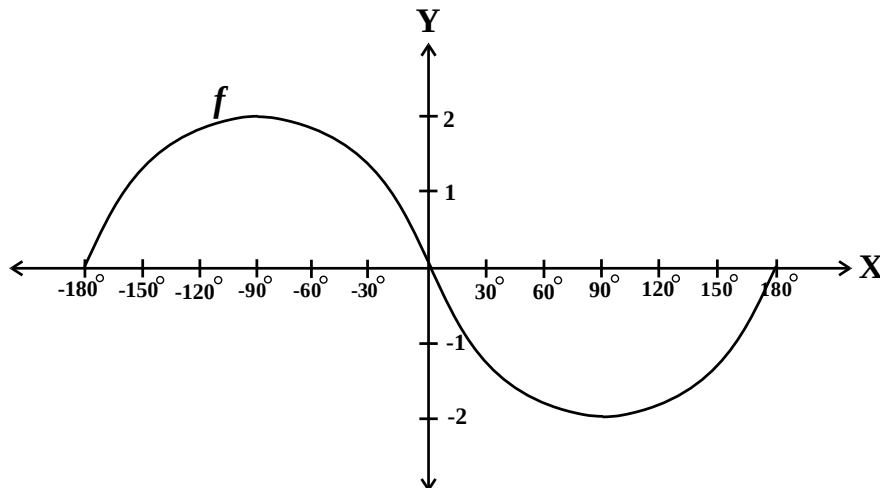
- (6) The sketch alongside shows one side of the elevation of a house.
- Some dimensions (in metres) are indicated on the figure.

Calculate, rounded off to ONE decimal place:

- (a) EC (3)
- (b) $\widehat{DCE}$ (3)
- (c) Area of $\triangle DEC$. (2)
- (d) The height of EF . (3)



- (7) The graph of $f(x) = -2 \sin x$ is sketched below.



- (a) Write down the period of f . (1)
- (b) Write down the amplitude of h if $h(x) = \frac{f(x)}{4}$ (2)
- (c) Draw the graph of $g(x) = \cos(x - 30^\circ)$ for $x \in [-180^\circ; 180^\circ]$ (3)
in on the above graph.
- (d) Use the graph to determine the NUMBER of solutions for (1)
 $-2 \sin x = \cos(x - 30^\circ)$, for $x \in [-180^\circ; 180^\circ]$.
- (e) For which values of x is $g(x) \geq 0$? (2)