

1. If $\sin x^\circ = 0.3$ and $\cos x^\circ = -0.7$, $0 \leq x \leq 360$, calculate the exact value of $\tan x^\circ$.
2. $\sin x^\circ = 0.8$, $0 \leq x \leq 90$. Calculate the exact value of:
- a) $\cos x^\circ$ b) $\tan x^\circ$.
3. The height, h cm, of the tip of the second hand of a wall clock above the floor is given by the formula $h(t) = 150 + 10 \sin(6t^\circ)$, where t is measured in seconds.
- a) What are the maximum and minimum heights of the tip of the second hand above the floor?
- b) After how many seconds do the first maximum and minimum heights occur?
- c) Calculate h after:
- i) 5 seconds ii) 25 seconds iii) 1 minute
4. A dolphin dives into the water and then leaps into the air before falling back into the water. Its height, h m, above the water is given approximately by the formula $h(t) = 1.3 \sin(45t^\circ)$, $0 \leq t \leq 8$ seconds.
- a) How deep does the dolphin dive?
- b) How high does it leap into the air?
- c) What is its height after
- i) 1 second ii) 5 seconds?

