**7G Modelling with Trigonometry**



1. The cabin pressure, $P$, in pounds per square inch (psi) on an aeroplane at cruising altitude can be modelled by the equation:

$P=11.5-0.5sin\left(t-2\right)$

*\*note these formulae are often a result of reducing to Rcos(x+a)* form

Where $t$ is the time in hours since the cruising altitude was first reached, and all angles are measured in radians

1. State the minimum and maximum cabin pressure
2. Find the time after reaching cruising altitude that the cabin first reaches a maximum pressure
3. Calculate the cabin pressure after 5 hours at a cruising altitude
4. Find all the times during the first 8 hours of cruising that the cabin pressure would be exactly 11.3 psi.