



QUESTION WORKBOOK

Second order equations

Differential equations · Year FM

7 questions · 29 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 Write down the auxiliary equation for $ay'' + by' + cy = 0$, and state where it comes from. [2]

A2 Find the general solution of $y'' - 7y' + 12y = 0$. [3]

SECTION B · Standard

B1 Find the general solution of $y'' + 9y = 0$, and state the period of every solution. [3]

B2 Find the general solution of $y'' - 6y' + 9y = 0$. [3]

B3 Solve $y'' - 2y' + 5y = 0$ with $y(0) = 2$ and $y'(0) = 0$. [6]

B4 Solve $y'' - y = 0$ with $y(0) = 1$ and $y'(0) = 0$, and identify the solution as a standard function. [5]

SECTION C · Stretch

C1 Find the general solution of $y'' - 3y' + 2y = 4e^{2x}$. [7]