**7A Part 1 First Order Differential Equations 2.0**

1. Find the general solution of the differential equation, then sketch members of the family of solution curves represented by the general solution.







Product Rule Examples (The new stuff)

1. Find the general solution of the following equation:

**7A Part 2 First Order Differential Equations and Integrating Factors**

Notes:

Solve the general equation:

Where P and Q are functions of x.

1. Find the general solution of the equation:
2. Find the general solution of the equation:

**7B Homogeneous Second Order Differential Equations**

Solve the equation:

**Case 1: b2 > 4ac**

Find and when

Find the auxiliary equation for

Summary: when b2 > 4ac then the solution will be in the form…

1. Find the general solution of the equation:

**Case 2: b2 = 4ac**

Show that

Satisfies the equation:

Summary: If b2=4ac then the solution will be in the form…

1. Find the general solution of the equation:

**Case 3: b2 < 4ac**

Find the general solution of the differential equation:

1. Find the general solution of the differential equation:

Summary: If b2=4ac then the solution will be in the form…



**7C Particular Integrals of Second Order Differential Equations**

1. Find the solution of the differential equation:
2. Find the general solution to the following differential equation:

Summary:



**7D Finding Constants of Second Order Differential Equations**

1. Find y in terms of x, given that:

And that when x = 0,

1. Given that the particular integral is of the form:

Find the solution of the differential equation:

When t = 0, x = 0 and dx/dt = 1