MA22S3 Tutorial Sheet 7.[1]

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Useful facts:

- To solve the equation $a\ddot{y}+b\dot{y}+cy=0$, with a, b and c constants, use an exponential substitution $y=\exp(\lambda t)$ and solve for λ. Usually this will give two solutions.

Questions

1. (2) Obtain the general solution to
$$\ddot{y}+\dot{y}-2y=0 \tag{1}$$

2. (2) Obtain the general solution to
$$\ddot{y}+6\dot{y}+8y=0 \tag{2}$$

3. (2) Obtain the general solution to
$$2\ddot{y}+5\dot{y}+3y=0 \tag{3}$$

4. (2) Obtain the solution to
$$\ddot{y}+7\dot{y}+6y=0 \tag{4}$$
with $y(0)=2$ and $\dot{y}(2)=-1$.

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