## University of Annaba-Department of Economy

First year undergraduation

Analysis<br>Supplementary problems<br>Differential equations

Exercise 1. Resolve the following differential equations:
1.

$$
\begin{equation*}
y^{\prime}-\left(x^{2}+x+1\right) y^{2}=0 \tag{1}
\end{equation*}
$$

2. 

$$
\begin{equation*}
x y^{\prime}-y=0 \tag{2}
\end{equation*}
$$

3. 

$$
\begin{equation*}
\left(x^{2}-1\right) y^{\prime}-2 x y^{2}=0 \tag{3}
\end{equation*}
$$

Exercise 2. Resolve the following differential equations: :
1.

$$
\begin{equation*}
x y^{\prime}-y-x=0 . \tag{4}
\end{equation*}
$$

2. 

$$
\begin{equation*}
x^{2} y^{\prime}-x y=y^{2} . \tag{5}
\end{equation*}
$$

Exercise 3. Resolve the following differential equations:
1.

$$
\begin{equation*}
y^{\prime \prime}+4 y^{\prime}+4 y=0 \tag{6}
\end{equation*}
$$

2. 

$$
\begin{equation*}
2 y^{\prime \prime}+3 y^{\prime}-5 y=0 \tag{7}
\end{equation*}
$$

3. 

$$
\begin{equation*}
y^{\prime \prime}+2 y^{\prime}+3 y=0 \tag{8}
\end{equation*}
$$

