Question 1  Fill in the steps given below for $y'' - \frac{3}{2} y' - y = 0$:

(a): Characteristic Eq:

(b): Factorize the characteristic Eq:

(c): Give solutions

(d): Check their Independence/dependence:

(e): Give general solution

(f): Find a particular solution when $y(0) = 1, y'(0) = 2$

Question 2  Construct a differential equation whose general solution is $y = (c_1 + c_2 x)e^{\frac{3}{2}x}$. 
Question 1 Construct a differential equation whose general solution is 
\[ y = (c_1 + c_2 x)e^{100x}. \]

Question 2 Fill in the steps given below for \( 6y'' - 5y' - y = 0 \):

(a): Characteristic Eq:

(b): Factorize the characteristic Eq:

(c): Give solutions

(d): Check their Independence/dependence:

(e): Give general solution

(f): Find a particular solution when \( y(0) = 2, y'(0) = 3 \)
Question 2  Construct a differential equation whose general solution is 
\[ y = (c_1 + c_2x)e^{\frac{1-x}{2}}. \]

Question 1  Fill in the steps given below for 
\[ 2y'' - 3y' - 2y = 0 \]:

(a): Characteristic Eq:

(b): Factorize the characteristic Eq:

(c): Give solutions

(d): Check their Independence/dependence:

(e): Give general solution

(f): Find a particular solution when \( y(0) = 3, y'(0) = 1 \)
Question 1  Fill in the steps given below for $y'' - y' - 6y = 0$:

(a): Characteristic Eq:

(b): Factorize the characteristic Eq:

(c): Give solutions

(d): Check their Independence/dependence:

(e): Give general solution

(f): Find a particular solution when $y(0) = 1, y'(0) = 2$

Question 2  Construct a differential equation whose general solution is $y = (c_1 + c_2x)e^x$