

Ans to the question 5 (a)

`In[]:= DSolve[y'[x] == $\left(\frac{2y[x] + 3}{4x + 5}\right)^2$, y[x], x]`

`Out[]:= $\left\{\left\{y[x] \rightarrow \frac{-7 - 8x - 60c_1 - 48xc_1}{2(-1 + 20c_1 + 16xc_1)}\right\}\right\}$`

`In[]:= sol = y[x] /. %1 /. C[1] -> a`

`Out[]:= $\left\{\frac{-7 - 60a - 8x - 48ax}{2(-1 + 20a + 16ax)}\right\}$`

`In[]:= Table[sol, {a, -2, 2}]`

`Out[]:= $\left\{\left\{\frac{113 + 88x}{2(-41 - 32x)}\right\}, \left\{\frac{53 + 40x}{2(-21 - 16x)}\right\}, \left\{\frac{1}{2}(7 + 8x)\right\}, \left\{\frac{-67 - 56x}{2(19 + 16x)}\right\}, \left\{\frac{-127 - 104x}{2(39 + 32x)}\right\}\right\}$`

`In[]:= Plot[Evaluate[Table[sol, {a, -2, 2}]], {x, -5, 5}, PlotLegends -> "Expressions"]`

