In[3]:= **s1 = DSolve$\left[\text{y'[x]} + \dfrac{\text{y[x]}}{\text{x}^2} == \text{Cos}\left[\text{x}^2\right], \text{y[x]}, \text{x}\right]$**

Out[3]= $\left\{\left\{\text{y[x]} \rightarrow \mathbb{e}^{\frac{1}{x}} \text{C[1]} + \mathbb{e}^{\frac{1}{x}} \displaystyle\int_1^x \mathbb{e}^{-\frac{1}{K[1]}} \text{Cos}\left[K[1]^2\right] dK[1]\right\}\right\}$

In[6]:= **s2 = DSolve$\left[\text{y'[x]} + 2\,\text{x} \times \text{y[x]} == 2\,\text{x}^3 \times \text{y[x]}^3, \text{y[x]}, \text{x}\right]$**

Out[6]= $\left\{\left\{\text{y[x]} \rightarrow -\dfrac{\sqrt{2}}{\sqrt{1 + 2\,\text{x}^2 + 2\,\mathbb{e}^{2\,\text{x}^2}\,\text{C[1]}}}\right\}, \left\{\text{y[x]} \rightarrow \dfrac{\sqrt{2}}{\sqrt{1 + 2\,\text{x}^2 + 2\,\mathbb{e}^{2\,\text{x}^2}\,\text{C[1]}}}\right\}\right\}$

In[7]:= **s3 = DSolve[y'[x] × sinx − y[x] lny[x] == 0, y[x], x]**

Out[7]= $\left\{\left\{\text{y[x]} \rightarrow \mathbb{e}^{\int_1^x \frac{\text{lny[K[1]]}}{\text{sinx}} dK[1]}\,\text{C[1]}\right\}\right\}$

In[8]:= **s4 = DSolve$\left[\text{y'[x]} == \dfrac{\text{x} - \text{y[x]}}{\text{x} + \text{y[x]}}, \text{y[x]}, \text{x}\right]$**

Out[8]= $\left\{\left\{\text{y[x]} \rightarrow -\text{x} - \sqrt{\mathbb{e}^{2\,\text{C[1]}} + 2\,\text{x}^2}\right\}, \left\{\text{y[x]} \rightarrow -\text{x} + \sqrt{\mathbb{e}^{2\,\text{C[1]}} + 2\,\text{x}^2}\right\}\right\}$

In[10]:= **s5 = DSolve[x × y'[x] + x × y[x] == 3 × x, y[x], x]**

Out[10]= $\left\{\left\{\text{y[x]} \rightarrow 3 + \mathbb{e}^{-\text{x}}\,\text{C[1]}\right\}\right\}$

In[12]:= **s6 = DSolve$\left[\text{x} \times \text{y'[x]} - 8 \times \text{y[x]} == \text{x}^3 \times \text{cosx}, \text{y[x]}, \text{x}\right]$**

Out[12]= $\left\{\left\{\text{y[x]} \rightarrow -\dfrac{\text{cosx}\,\text{x}^3}{5} + \text{x}^8\,\text{C[1]}\right\}\right\}$

In[15]:= **s7 = DSolve$\left[\text{x} \times \text{y'[x]} - \dfrac{\text{y[x]}}{\text{x}} == \text{x}^2 \times \text{y[x]}^5, \text{y[x]}, \text{x}\right]$**

Out[15]= $\left\{\left\{\text{y[x]} \rightarrow -\dfrac{(-1)^{1/4}}{\left(-8\,\text{x} + 2\,\text{x}^2 - \mathbb{e}^{4/x}\,\text{C[1]} - 32\,\mathbb{e}^{4/x}\,\text{ExpIntegralEi}\left[-\frac{4}{x}\right]\right)^{1/4}}\right\},\right.$

$\left\{\text{y[x]} \rightarrow \dfrac{(-1)^{1/4}}{\left(-8\,\text{x} + 2\,\text{x}^2 - \mathbb{e}^{4/x}\,\text{C[1]} - 32\,\mathbb{e}^{4/x}\,\text{ExpIntegralEi}\left[-\frac{4}{x}\right]\right)^{1/4}}\right\},$

$\left\{\text{y[x]} \rightarrow -\dfrac{(-1)^{3/4}}{\left(-8\,\text{x} + 2\,\text{x}^2 - \mathbb{e}^{4/x}\,\text{C[1]} - 32\,\mathbb{e}^{4/x}\,\text{ExpIntegralEi}\left[-\frac{4}{x}\right]\right)^{1/4}}\right\},$

$\left.\left\{\text{y[x]} \rightarrow \dfrac{(-1)^{3/4}}{\left(-8\,\text{x} + 2\,\text{x}^2 - \mathbb{e}^{4/x}\,\text{C[1]} - 32\,\mathbb{e}^{4/x}\,\text{ExpIntegralEi}\left[-\frac{4}{x}\right]\right)^{1/4}}\right\}\right\}$

In[20]:= **s8 = DSolve$\left[\text{x} \times \text{y'[x]} \times \text{y[x]} - \text{y[x]}^2 + \text{x}^2 - 2 == 0, \text{y[x]}, \text{x}\right]$**

Out[20]= $\left\{\left\{\text{y[x]} \rightarrow -\sqrt{\text{x}^2\,\text{C[1]} + 2\,\text{x}^2\left(-\dfrac{1}{\text{x}^2} - \text{Log[x]}\right)}\right\}, \left\{\text{y[x]} \rightarrow \sqrt{\text{x}^2\,\text{C[1]} + 2\,\text{x}^2\left(-\dfrac{1}{\text{x}^2} - \text{Log[x]}\right)}\right\}\right\}$

In[31]:= **s9 = DSolve$\left[\text{x}^2 \times \text{y'[x]} - (\text{x} \times \text{y[x]} - 2)^2 == 0, \text{y[x]}, \text{x}\right]$**

Out[31]= $\text{DSolve}\left[-\left(-2 + \text{x}\,\dfrac{a}{x}\text{[x]}\right)^2 + \text{x}^2\left(\dfrac{a}{x}\right)'\text{[x]} == 0, \dfrac{a}{x}\text{[x]}, \text{x}\right]$