

In[14]:= **eq = 1/(x^2) + 1/(x + 2)^2 == 10/9**

**Solve[eq, x]**

Out[14]=  $\frac{1}{x^2} + \frac{1}{(2+x)^2} == \frac{10}{9}$

Out[15]=  $\left\{ \{x \rightarrow -3\}, \{x \rightarrow 1\}, \left\{ x \rightarrow \frac{1}{5}(-5 - i\sqrt{5}) \right\}, \left\{ x \rightarrow \frac{1}{5}(-5 + i\sqrt{5}) \right\} \right\}$

In[16]:= **eq /. x -> 1**

Out[16]= True

In[17]:= **eq /. x -> -3**

Out[17]= True

In[7]:= **FindRoot[1/(x^2) + 1/(x + 2)^2 == 10/9, {x, 2}]**

Out[7]= {x -> 1.}

In[9]:= **FindRoot[1/(x^2) + 1/(x + 2)^2 == 10/9, {x, -10}]**

Out[9]= {x -> -3.}

In[18]:= **sys = {x^2 - y^2 == 3, x^2 + x\*y + y^2 == 7}**

Out[18]=  $\{x^2 - y^2 == 3, x^2 + x y + y^2 == 7\}$

In[37]:= **Solve[sys, {x, y}]**

Out[37]=  $\left\{ \{x \rightarrow -2, y \rightarrow -1\}, \{x \rightarrow 2, y \rightarrow 1\}, \left\{ x \rightarrow -\frac{5}{\sqrt{3}}, y \rightarrow \frac{4}{\sqrt{3}} \right\}, \left\{ x \rightarrow \frac{5}{\sqrt{3}}, y \rightarrow -\frac{4}{\sqrt{3}} \right\} \right\}$

In[23]:= **sys /. x -> 2 /. y -> 1**

Out[23]= {True, True}

In[28]:= **sys /. {x -> -2, y -> -1}**

Out[28]= {True, True}

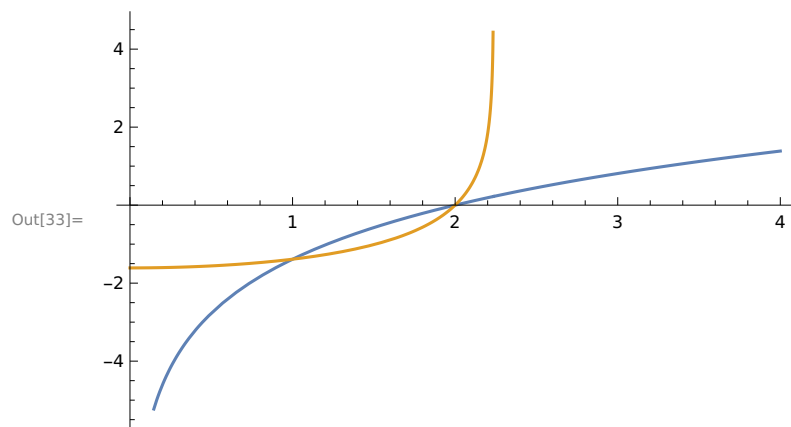
In[27]:= **sys /. {x -> -2.88675, y -> 2.3094}**

Out[27]= {False, False}

In[29]:= **sys /. {x -> 2.88675, y -> -2.3094}**

Out[29]= {False, False}

```
In[33]:= Plot[{2 * Log[x] - Log[4], -Log[5 - x ^ 2]}, {x, 0, 4}]
```



```
In[38]:= eq = 2 * Log[x] - Log[4] == -Log[5 - x ^ 2]
eq /. {x -> 2}
```

```
Out[38]= -Log[4] + 2 Log[x] == -Log[5 - x^2]
```

```
Out[39]= True
```

```
In[40]:= eq /. {x -> 1}
```

```
Out[40]= True
```