

Solutions

2.1 Subtract twice $x+y=12$ from $3x+2y=31$: $x=31-24=7$.

2.2 Use $x+y=12$, so $y=12-7=5$.

2.3 The first equation gives $x+y=12$; substitute $x=7$ to obtain $y=5$.

2.4 Equate the graphs: $x^2-x-2=(x-2)(x+1)=0$. The larger root is 2.

3.1 False. The point $(0,12)$ satisfies $x+y=12$ but not $3x+2y=31$. The solution $(7,5)$ satisfies both equations: $7+5=12$ and $21+10=31$.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.