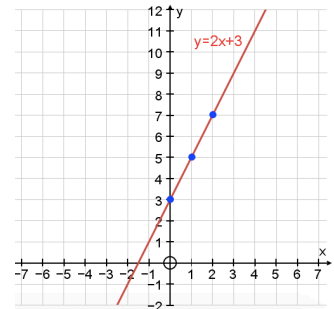


## Solving Simultaneous Equations Graphically (including the cover-up method)

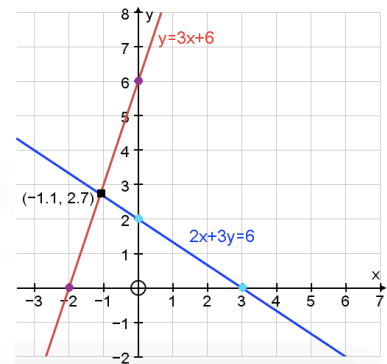
**E.g. 1** Draw the line  $y = 2x + 3$ .

**Working:** Let  $x = 0$  then  $y = 3$  so plot  $(0, 3)$   
 Let  $x = 1$  then  $y = 2 + 3 = 5$  so plot  $(1, 5)$   
 Check: let  $x = 2$  then  $y = 2 \times 2 + 3 = 7$   
 so plot  $(2, 7)$   
 Plot the points and draw a straight line through them.



**E.g. 2** Draw the line  $y = 3x + 6$ .

**Working:**  
 Cover up  $3x$  (i.e.  $x = 0$ )  $\Rightarrow y = 6 \Rightarrow$  plot  $(0, 6)$   
 Cover up  $y$  (i.e.  $y = 0$ )  $\Rightarrow x = -2 \Rightarrow$  plot  $(-2, 0)$



**E.g. 3** Draw  $2x + 3y = 6$ .

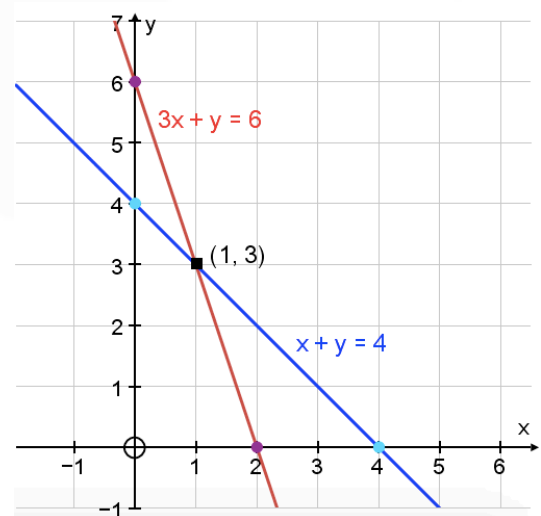
**Working:**  
 Cover up  $2x$  (i.e.  $x = 0$ )  $\Rightarrow 3y = 6 \Rightarrow y = 2 \Rightarrow$  plot  $(0, 2)$   
 Cover up  $3y$  (i.e.  $y = 0$ )  $\Rightarrow 2x = 6 \Rightarrow x = 3 \Rightarrow$  plot  $(3, 0)$

**E.g. 4** Solve the simultaneous equations  $3x + y = 6$  and  $x + y = 4$  using a graphical method

**Working:**  
 $3x + y = 6$   
 Cover up  $3x$  (i.e.  $x = 0$ )  $\Rightarrow y = 6 \Rightarrow$  plot  $(0, 6)$   
 Cover up  $y$  (i.e.  $y = 0$ )  $\Rightarrow x = 2 \Rightarrow$  plot  $(2, 0)$   
 $x + y = 4$   
 Cover up  $x$  (i.e.  $x = 0$ )  $\Rightarrow y = 4 \Rightarrow$  plot  $(0, 4)$   
 Cover up  $y$  (i.e.  $y = 0$ )  $\Rightarrow x = 4 \Rightarrow$  plot  $(4, 0)$

Lines intersect at  $(1, 3)$  so the solution is  $x = 1, y = 3$

**Check:**  
 $3x + y = 6: 3 \times 1 + 3 = 6$  ✓  
 $x + y = 4: 1 + 3 = 4$  ✓



**Video:** [Solving simultaneous equations graphically](#)

[Solutions to Starter and E.g.s](#)

**Exercise**

**N.B.** Qu 1, 2 gives the axes pupils have to draw on.

9-1 class textbook: p378 M12.1 Qu 1-3 **and** p379 M12.2 Qu 2-5  
A\*-G class textbook: p342 M12.1 Qu 2, 3 **and** p343 M12.2 Qu 1-6  
9-1 homework book: p126 M12.1 Qu 1, 2 **and** p127 M12.2 Qu 1-3  
A\*-G homework book: p95 M12.1 Qu 1, 2 **and** p95 M12.2 Qu 1-3

**[Homework book answers \(only available during a lockdown\)](#)**

