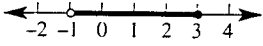
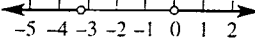


# Test yourself 3

- Solve
  - $8 = 3b - 22$
  - $\frac{a}{4} - \frac{a+2}{3} = 9$
  - $4(3x+1) = 11x - 3$
  - $\frac{-4}{x+3} \leq 3$
  - $3p + 1 \leq p + 9$
- The compound interest formula is  $A = P(1 + \frac{r}{100})^n$ . Find correct to 2 decimal places
  - $A$  when  $P = 1000$ ,  $r = 6$  and  $n = 4$
  - $P$  when  $A = 12\,450$ ,  $r = 5.5$  and  $n = 7$
- Complete the square on
  - $x^2 - 8x$
  - $k^2 + 4k$
- Solve these simultaneous equations.
  - $x - y + 7 = 0$  and  $3x - 4y + 26 = 0$
  - $xy = 4$  and  $2x - y - 7 = 0$
- Solve
  - $3^{x+2} = 81$
  - $16^x = 2$
- Solve
  - $|3b - 1| = 5$
  - $|5g - 3| = 3g + 1$
  - $|2x - 7| \geq 1$
- The area of a trapezium is given by  $A = \frac{1}{2}h(a + b)$ . Find
  - $A$  when  $h = 6$ ,  $a = 5$  and  $b = 7$
  - $b$  when  $A = 40$ ,  $h = 5$  and  $a = 4$
- Solve  $2x^2 - 3x + 1 = 0$  by
  - factorisation
  - quadratic formula
- Solve  $-2 < 3y + 1 \leq 10$ , and plot your solution on a number line.
- Solve correct to 3 significant figures
  - $x^2 + 7x + 2 = 0$
  - $y^2 - 2y - 9 = 0$
  - $3n^2 + 2n - 4 = 0$
- The surface area of a sphere is given by  $A = 4\pi r^2$ . Evaluate to 1 decimal place
  - $A$  when  $r = 7.8$
  - $r$  when  $A = 102.9$
- Solve  $\frac{x-3}{7} - \frac{3}{4} > 9$ .
- Solve  $x^2 - 11x + 18 > 0$ .
- Solve the simultaneous equations  $x^2 + y^2 = 16$  and  $3x + 4y - 20 = 0$ .
- The volume of a sphere is  $V = \frac{4}{3}\pi r^3$ . Evaluate to 2 significant figures
  - $V$  when  $r = 8$
  - $r$  when  $V = 250$
- Which of the following equations has
  - 2 solutions
  - 1 solution
  - no solutions?
  - $x^2 - 6x + 9 = 0$
  - $|2x - 3| = 7$
  - $|x - 2| = 7 - x$
  - $x^2 - x + 4 = 0$
  - $|2x + 1| = x - 2$
- Solve simultaneously  $a + b = 5$ ,  $2a + b + c = 4$ ,  $a - b - c = 5$ .
- Solve  $|3n + 5| > 5$ , and plot the solution on a number line.
- Solve  $\frac{3}{x+1} = \frac{4}{x}$  ( $x \neq 0, -1$ ).
- Solve  $9^{2x+1} = 27^x$ .

## ANSWERS

### TEST YOURSELF 3

- (a)  $b = 10$  (b)  $a = -116$  (c)  $x = -7$   
(d)  $x \leq -4\frac{1}{3}$ ,  $x > -3$  (e)  $p \leq 4$
- (a)  $A = 1262.48$  (b)  $P = 8558.59$
- (a)  $(x-4)^2 - 16$  (b)  $(k+2)^2 - 4$
- (a)  $x = -2$ ,  $y = 5$   
(b)  $x = 4$ ,  $y = 1$  and  $x = -\frac{1}{2}$ ,  $y = -8$
- (a)  $x = 2$  (b)  $y = \frac{1}{4}$  6. (a)  $b = 2$ ,  $-1\frac{1}{3}$   
(b)  $g = 2$ ,  $\frac{1}{4}$  (c)  $x \geq 4$ ,  $x \leq 37$ . (a)  $A = 36$   
(b)  $b = 128$ ,  $x = \frac{1}{2}$ ,  $1$
- $-1 < y \leq 3$  
- (a)  $x = -0.298$ ,  $-6.70$  (b)  $y = 4.16$ ,  $-2.16$   
(c)  $n = 0.869$ ,  $-1.54$  11. (a)  $V = 764.5$   
(b)  $r = 2.9$  12.  $x > 71\frac{1}{4}$  13.  $x < 2$ ,  $x > 9$
- $x = 2.4$ ,  $y = 3.2$  15. (a)  $V = 2100$  (b)  $r = 3.9$
- (a) ii (b) i (c) ii (d) iii (e) iii
- $a = 3$ ,  $b = 2$ ,  $c = -4$
- $n > 0$ ,  $n < -3\frac{1}{4}$  
- $x = -4$  20.  $x = -2$