

 chapter 18 review

1. (a) ✎ Plot on a number line the solution of  $4x - 9 \leq 3$ , where  $x \in \mathbf{N}$ .
- (b) ✎ Solve the inequality  $4(x - 7) - 5 \geq 5(x - 3) - 13$ ,  $x \in \mathbf{R}$ , and plot the solution on a number line.
- (c) ✎ Two numbers when added give 70. When these numbers are subtracted from each other, the result is 40. Find these numbers.

2. (a) ✎ Find the set of values of  $x$ , for which  $5x - 7 < 8$ ,  $x \in \mathbf{N}$ .

(b) ✎ Solve for  $x$  and for  $y$ :

$$\begin{aligned} 2x - 3y &= 9 \\ 5x + 2y &= 13 \end{aligned}$$

- (c) ✎  $x$  is a number and  $y$  is a second number. The two numbers when added together give 36.

(i) Write an equation to represent this information.

When four times the second number is added to twice the first number, the result is 84.

(ii) Write an equation to represent this information.

(iii) Solve the equations in part (i) and part (ii) to find the value for  $x$  and the value for  $y$ .

3. (a) ✎ Show on a number line the solution of the inequality  $2(4x - 1) < 16 - x$ ,  $x \in \mathbf{Z}$ .

(b) ✎ Solve for  $x$  and for  $y$ :

$$\begin{aligned} 3x - y &= 27 \\ x &= 5 - y \end{aligned}$$

- (c) ✎ A bar of chocolate costs  $x$  cent and an ice cream costs  $y$  cent. Frances bought three bars of chocolate and two ice creams for €3.80. Seán bought four bars of chocolate and three ice creams for €5.30.

Find the cost of a bar of chocolate and the cost of an ice cream.



4. (a) ✎ Write down the values of  $x$ , for which  $x - 7 > 2x - 12$ ,  $x \in \mathbf{N}$ .
- (b) ✎ Solve for  $x$  and for  $y$ :  $7x - 2y = 6$   
 $x - 3y = 9$
- (c) ✎ One day last week, a shop sold  $x$  copies of *The Star* and  $y$  copies of *The Irish Independent*. The total number of these papers sold was 250. *The Star* cost €1 and *The Irish Independent* cost €2. Find the number of copies of each paper sold if the total money paid for these papers was €350.
5. (a) ✎ Plot on a number line the solution of  $5x - 8 \geq 7x - 12$ ,  $x \in \mathbf{N}$ .
- (b) ✎ Solve for  $x$  and for  $y$ :  $x - 3y = 14$   
 $y = 7x + 2$
- (c) ✎ On the same axes and using the same scale, draw the graphs of the lines  $y = -x + 6$  and  $y = 2x - 12$ .  
Use your graph to find the point of intersection of the two lines.
6. (a) ✎ Solve for  $x$  and for  $y$ :  $x - 3y = 7$   
 $x - y = 15$
- (b) ✎ On separate number lines, graph the solutions to each of the following inequalities:  
(i)  $x < 5$ ,  $x \in \mathbf{R}$       (ii)  $x \geq -5$ ,  $x \in \mathbf{R}$   
Hence show, on a new number line, the numbers which are common to both inequalities.
- (c) ✎ A group of students and teachers from Westport went by train to a concert in Dublin.



- Tickets for the train cost €40 for teachers and €25 for students.
- Tickets for the concert cost €35 for teachers and €10 for students.
- The total cost of the train tickets was €700.
- The total cost of the concert tickets was €375.

How many teachers and students went to Dublin?