

# Simultaneous Equations

1. Solve each pair of simultaneous equations by substitution.

a)  $y = x + 1$   
 $x + y = 11$

b)  $y = x + 2$   
 $x + 2y = 16$

c)  $y = 14 - 2x$   
 $4y + x = 14$

d)  $y + 2x = 2$   
 $x = y - 2$

2. Solve each pair of simultaneous equations by elimination.

a)  $2x + y = 9$   
 $x - y = 3$

b)  $3x + 4y = 17$   
 $x - y = 5$

c)  $2x + 3y = -8$   
 $5x + 2y = -9$

d)  $5a - 7b = 9$   
 $3a + 5b = -13$

3. Suzie has a new mobile phone. She is charged  $x$  pence per minute for call and  $y$  pence per minute for each text she sends. During the first month her calls last a total of 280 minutes and she sends 70 texts. Her bill is £52.50.

a) Write down an equation in  $x$  and  $y$  which satisfies the above condition.

The next month she reduces her bill. She restricts her calls to 210 minutes and sends 40 texts. Her bill is £38.00

b) Write down a second equation in  $x$  and  $y$  which satisfies this condition.

c) Calculate the price per minute for a call and the price for each sent text.

4. David wants to surprise his girlfriend by buying her a bunch of red and yellow roses for Valentine's Day. At the florist six red roses and two yellow roses cost £9.50 and twelve red roses and six yellow roses cost £21.00.

David decides to buy a bouquet of 6 red and 12 yellow roses.

What would be the total cost?