Solving Linear Simultaneous Equations

Find the values of x and y in the following by solving the simultaneous equations:

1. $x + y = 10$
   $2x + y = 13$

2. $5x + 3y = 22$
   $5x - y = 6$

3. $2a + b = 3$
   $2a - 3b = 7$

4. $5m - 3n = -4$
   $2m + 3n = 11$

5. $2a - 3b = -14$
   $-a + b = 3$

6. $x - y = -2.5$
   $-3x + y = -0.5$

7. $2x - 3y = -13$
   $x - 3y = -17$

8. $-3n + 3p = 1.5$
   $2n - p = -3$

9. $10x - 2y = 41$
   $3x + y = 5.9$

10. It costs £25.50 for Mr and Mrs Ode and their ten year old triplets, Cath, Ann and Di to go to the cinema together. It costs £10.50 for Mr Fulari and his 9 year old son, Tom, to go to the same cinema together. What is the cost of a child's ticket and what is the cost of an adult's ticket?

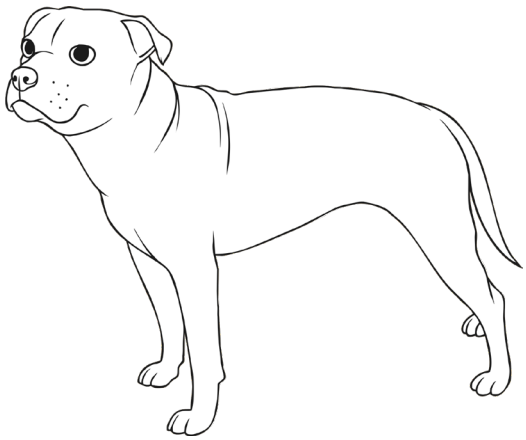
11. Laura and Dora each have some stickers. Altogether they have 87. Laura has 9 more than Dora. Create and solve simultaneous equations to show this information and to find the number of stickers that each has.

12. Luca has some 10 pence pieces and some 5 pence pieces. Altogether he has 40 coins and £3.15. How many of each coin does he have?

13. A rectangular sheet of paper has perimeter 60cm. When it is folded in half along its longer line of symmetry, the perimeter of the rectangle which this creates is 49cm. What are the dimensions of the original shape?

14. Seema makes and sells pencil cases and makeup bags. It takes her 10 hours to make 5 of each. It takes her 10 hours 30 minutes to make 4 pencil cases and 6 makeup bags. How long does it take her to make 1 pencil case and how long does it take her to make 1 makeup bag?

15. Godfrey does 2 different circular walks with his dogs. One week, he does the walk to the river, 8 times and the walk to the castle, 9 times. The following week he does the river walk, 10 times and the castle walk, 4 times. If he walks a total of 43.75 miles in the first week and 42 miles in the second week, how far is each walk?



Solving Linear Simultaneous Equations **Answers**

1. $x = 3, y = 7$
2. $x = 2, y = 4$
3. $a = 2, b = -1$
4. $m = 1, n = 3$
5. $a = 5, b = 8$
6. $x = 1.5, y = 4$
7. $x = 4, y = 7$
8. $n = -2.5, p = -2$
9. $x = 3.3, y = -4$
10. A child's ticket is £4.50 and an adult's ticket is £6.
11. L is the number of stickers that Laura has; D is the number of stickers that Dora has.
    L + D = 87
    L – D = 9; L = D + 9
    L = 48, D = 39
12. 17 × 5 pence pieces. 23 × 10 pence pieces.
13. The original shape measures 11cm by 19cm.
14. A pencil case takes 0.75 hours to make and a makeup bag takes 1.25 hours to make.
15. The river walk is 3.5 miles long; the castle walk is 1.75 miles long.