

Y6 Two Unknowns

KS2 Y6 Maths · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

$a + b = 9$. List all the pairs of whole numbers (1 or more).

Step 1 · Start with $a = 1$ and work up

(1, 8), (2, 7), (3, 6), (4, 5)

Step 2 · Keep going

(5, 4), (6, 3), (7, 2), (8, 1)

Answer: 8 pairs

Check: Working in order shows none are missing ✓

2. Now try one with the steps

$2a + b = 11$. Find all the pairs of whole numbers (1 or more).

Step 1 · $a = 1$: $b = 11 - 2$

Step 2 · $a = 2, 3, 4, 5$

Step 3 · $a = 6$ would make $b = -1$

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. $a + b = 7$. List all the pairs of whole numbers (1 or more).

2. How many pairs of whole numbers (1 or more) make $a + b = 12$?

3. $a \times b = 24$. How many pairs of whole numbers are there?

4. $2a + b = 10$. List all the pairs of whole numbers (1 or more).

5. $a - b = 3$. a is less than 10 and b is at least 1. How many pairs are there?

6. $x + y = 15$ and x is twice y . Find x and y .

7. $a + b = 20$ and $a - b = 4$. Find a and b .

8. $p \times q = 36$ and $p + q = 13$. Find p and q .

9. Child tickets cost £4 and adult tickets £7. A group spends exactly £36. What could they have bought?

10. Sam has 4 T-shirts and 3 pairs of shorts. How many different outfits of one T-shirt and one pair of shorts can he make?

11. How many different 2-digit numbers can you make from the digits 1, 2 and 3 without repeating a digit?

12. A sandwich bar has 3 types of bread and 5 fillings. How many different sandwiches with one bread and one filling are there?

13. $3a + 2b = 16$. Find all the pairs of whole numbers (1 or more).

14. Two numbers add up to 50 and their difference is 14. What are they?

15. Sweets come in bags of 3 and bags of 5. Mo buys exactly 23 sweets. How many of each bag could he have bought?

4. Before you hand it in

Stopping after finding one pair.

Equations with two unknowns often have many solutions. Work systematically ($a = 1, 2, 3 \dots$) to find them all.

Listing pairs randomly and missing some.

Change one value step by step and record in a table.

Counting 12 outfits as $4 \times 3 = 12$.

Each of the 4 T-shirts goes with each of the 3 pairs of shorts: $4 \times 3 = 12$.