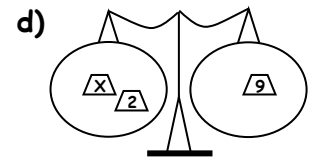
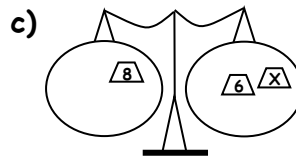
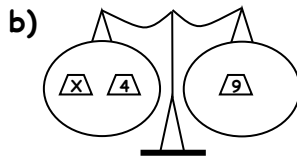
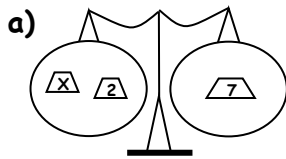


Balancing the Scales

TASK 1

1) Work the value of the X weight on each of the scales below.



2) Now solve these written equations showing your working out.

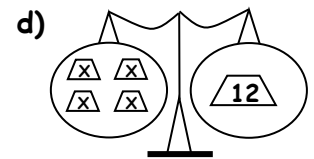
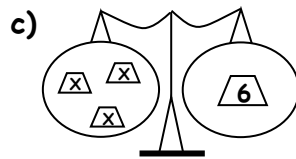
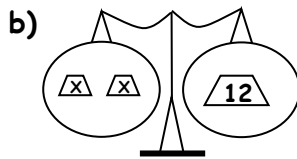
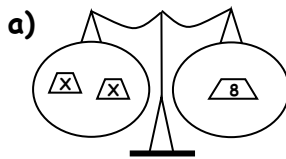
a) $X + 4 = 6$

b) $9 + X = 13$

c) $20 = X + 7$

d) $6 + X = 15$

3) Work out the value on an X on each of these sets of scales.



4) Now solve these written equations showing your working out.

a) $2X = 10$

b) $2X = 14$

c) $3X = 15$

d) $4X = 20$

TASK 2

Show the following equations as a set of scales. Then solve them.

a) $X + 9 = 21$

b) $5 + X = 15$

c) $2X = 18$

d) $4X = 40$

TASK 3

Solve the following equations showing your working out.

1a) $X + 11 = 20$

b) $2X = 16$

c) $X + 7 = 30$

d) $5X = 15$

2a) $3X = 21$

b) $12 + X = 31$

c) $6X = 18$

d) $16 + X = 51$

3a) $X - 4 = 6$

b) $X - 5 = 13$

c) $7 - X = 4$

d) $6 - X = 1$

4a) $X \div 2 = 6$

b) $X \div 3 = 2$

c) $X \div 2 = 7$

d) $X \div 4 = 5$

5a) $X - 14 = 6$

b) $19 - X = 8$

c) $X \div 7 = 6$

d) $X \div 9 = 5$

Balancing the Scales

ANSWERS

TASK 1

1) Work the value of the X weight on each of the scales below.

a) $X = 5$

b) $X = 5$

c) $X = 2$

d) $X = 7$

2) Now solve these written equations showing your working out.

a) $X = 2$

b) $X = 4$

c) $X = 13$

d) $X = 9$

3) Work out the value on an X on each of these sets of scales.

a) $X = 4$

b) $X = 6$

c) $X = 2$

d) $X = 3$

4) Now solve these written equations showing your working out.

a) $X = 5$

b) $X = 7$

c) $X = 5$

d) $X = 5$

TASK 2

Show the following equations as a set of scales. Then solve them.

a) $X = 12$

b) $X = 10$

c) $X = 9$

d) $X = 10$

TASK 3

Solve the following equations showing your working out.

1a) $X = 9$

b) $X = 8$

c) $X = 23$

d) $X = 3$

2a) $X = 7$

b) $X = 19$

c) $X = 3$

d) $X = 35$

3a) $X = 10$

b) $X = 18$

c) $X = 3$

d) $X = 5$

4a) $X = 12$

b) $X = 6$

c) $X = 14$

d) $X = 20$

5a) $X = 20$

b) $X = 11$

c) $X = 42$

d) $X = 45$

Simultaneous Equations A

Part 1 Simple Addition Equations

Add the equations together and one of the letters will disappear.

1. ① $7X + 2Y = 30$
② $X - 2Y = 2$

2. ① $9X + 3Y = 19$
② $6X - 3Y = 11$

3. ① $6X + 3Y = 9$
② $X - 3Y = 5$

4. ① $8X + Y = 18$
② $6X - Y = 10$

5. ① $8X + 2Y = 30$
② $11X - 2Y = 8$

6. ① $X + 3Y = 12$
② $-X + 3Y = 18$

7. ① $-6X + 3Y = 35$
② $6X + 7Y = 5$

8. ① $6X + 3Y = 9$
② $-6X - 1Y = 5$

Part 2 Simple Subtraction Equations

This time you need to subtract one equation from the other.

1. ① $7X + 2Y = 30$
② $X + 2Y = 6$

2. ① $9X + Y = 18$
② $6X + Y = 30$

3. ① $6X - 2Y = 9$
② $7X - 2Y = 5$

4. ① $6X - 3Y = 19$
② $-2X - 3Y = 3$

Part 3 Addition and Subtraction Equations

These questions are a mixture of those covered in parts 1 and 2.

1. ① $3X + 2Y = 30$
② $4X - 2Y = 5$

2. ① $9X + Y = 19$
② $6X + Y = 16$

3. ① $3X - 3Y = 45$
② $2X - 3Y = 15$

4. ① $3X - 2Y = 2$
② $2X + 2Y = 3$

5. ① $2X + 2Y = 2$
② $4X - 2Y = 1$

6. ① $5X - 3Y = 33$
② $6X - 3Y = 11$

7. ① $11X + 3Y = 5$
② $7X + 3Y = 13$

8. ① $2X + Y = 0.5$
② $5X - Y = 3$

Simultaneous Equations A

Answers

Part 1 Simple Addition Equations

1. ① $X = 4$
② $Y = 1$

2. ① $X = 2$
② $Y = -1/3$

3. ① $X = 2$
② $Y = -1$

4. ① $X = 2$
② $Y = 2$

5. ① $X = 2$
② $Y = 7$

6. ① $Y = 5$
② $X = -3$

7. ① $Y = 4$
② $X = -23/6$

8. ① $Y = 7$
② $X = -2$

Part 2 Simple Subtraction Equations

1. ① $X = 4$
② $Y = 1$

2. ① $X = -4$
② $Y = 18$

3. ① $X = -4$
② $Y = -16.5$

4. ① $X = 2$
② $Y = -7/3$

Part 3 Addition and Subtraction Equations

1. ① $X = 5$
② $Y = -7.5$

2. ① $X = 1$
② $Y = 10$

3. ① $X = 30$
② $Y = 15$

4. ① $X = 1$
② $Y = 1/2$

5. ① $X = 1/2$
② $Y = 1/2$

6. ① $X = -22$
② $Y = 77/3 = 25 \frac{2}{3}$

7. ① $X = -2$
② $Y = 9$

8. ① $X = 0.5$
② $Y = -0.5$

Trial and Improvement

Trial and improvement is the easiest type of mathematics you can do. Trial and improvement just means 'take a guess and see how close you are'.

Part 1 Simple Equations

Using your calculator to help, solve these equations using trial and improvement.

1. $x + 67 = 123$

5. $15x = 825$

9. $2378 + x = 3456$

2. $89 + x = 436$

6. $x \times 77 = 1001$

10. $763 - x = 99$

3. $x - 67 = 282$

7. $512 \div x = 8$

11. $x \times 101 = 10100$

4. $962 - x = 386$

8. $x \div 17 = 76$

12. $x \div 84 = 0.5$

Part 2 A Number Times Itself

All these equations are of the same type. You must guess the number that, when multiplied by itself, gives you the answer shown.

1. $x \times x = 81$

4. $x \times x = 625$

7. $x \times x = 10000$

2. $x \times x = 144$

5. $x \times x = 1296$

8. $x \times x = 0.25$

3. $x \times x = 400$

6. $x \times x = 9801$

9. $x \times x = 0.01$

Part 3 Laying out your results

- a. Copy the table on the right.
 b. Use the table to solve the equation: $x^2 = 30$.

Instructions:

- Write a guess for x in the table.
- Calculate x^2 and add it to the 'Result' column.
- Say whether the result is 'too high' or 'too low'.

- c. Draw a new table and solve the equation:
 $x^2 = 60$.
 d. Repeat for the equation: $x^2 = 1000$.
 e. Repeat for the equation: $x^3 = 100$.

	Guess	Result	Too High / Too Low
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			