Express Missing Number Problems Algebraically

For each question, expresses the problems algebraically and then solve the problem.

Example:

Twelve more than three lots of a number is 36. What is the number?

$3n+12=36$ $n=8$

Note: With addition, answers can be either way round: $n+16=35$, $16+n=35$; but not subtraction.

1. Ten less than two lots of a number is 24. What is the number?

_____ _____

2. 15 is added to three lots of a number to make 45.

_____ _____

3. Fifteen is subtracted from four times a number to make 29. What is the number?

_____ _____

4. Nineteen more than two lots of a number is 43. What is the number?

_____ _____

5. Five times a number has thirteen added to it to make 58. What is the number?

_____ _____

6. What number is multiplied by 4 and has 23 added to it to make 55?

_____ _____

7. What number has nineteen subtracted from it to make twenty-five?

_____ _____

8. 56 is the total of twenty three and three times a number. What is the number?

_____ _____

Challenge

Write some of your own questions for others to work out.

Express Missing Number Problems Algebraically

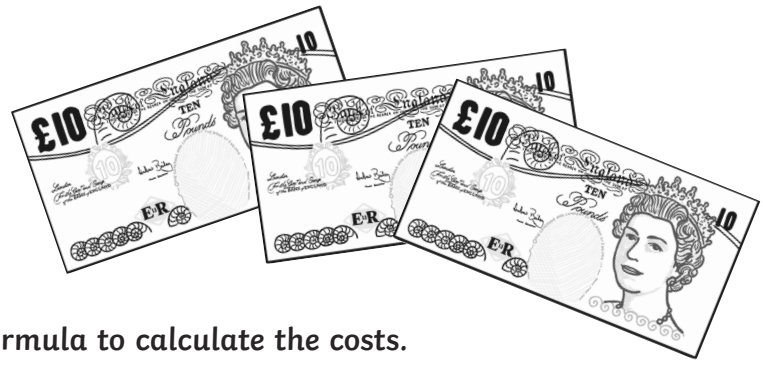
1. A tile shop sells tiles online. Tiles that cover a square metre cost £m. Delivery is charged at £d.
   The area to be covered is a.
   Using the variables m, d and a, express the cost of tiles to cover area a.
   8 square metres of wall needs to be covered. The cost of the tiles is £9 per square metre.
   Delivery is £5. Calculate the cost of the tiles.
   A tiler decides to compare the cost of tiles from different suppliers.
   He uses the following table to calculate the different costs.

Supplier	m	a	d	cost
1	£6.00	12	£9.00	
2	£7.00	12	£5.00	
3	£8.00	12	£6.00	
4	£6.50	12	£2.00	
5	£7.50	12	£3.00	

Which supplier is the cheapest?
If the tiler wants tiles to cover 15m2, does the cheapest supplier remain the same?

2. A man wants to choose a plumber. He asks the plumbers what their hourly rate is, what their call out charge is and whether they offer a discount for early payment.
   Using letters to represent the four variables, express the cost of the plumber algebraically.

Create a table with the costs of 5 different plumbers. You will need to write your own costs.



Challenge

Use a spreadsheet and write a formula to calculate the costs.
Write your own scenario for others to express algebraically.

Express Missing Number Problems Algebraically Answers

For each question, expresses the problems algebraically and then solve the problem.

Example:

Twelve more than three lots of a number is 36. What is the number?

$3n+12=36$ $n=8$

Note: With addition, answers can be either way round: $n+16=35$, $16+n=35$; but not subtraction.

1. Ten less than two lots of a number is 24. What is the number?

   $2n-10=24$ $n=17$

2. 15 is added to three lots of a number to make 45.

   $3n+15=45$ $n=10$

3. Fifteen is subtracted from four times a number to make 29. What is the number?

   $4n-15=29$ $n=11$

4. Nineteen more than a number is 43. What is the number?

   $2n+19=43$ $n=12$

5. Five times a number has thirteen added to it to make 58. What is the number?

   $5n+13=58$ $n=9$

6. What number is multiplied by 4 and has 23 added to it to make 55?

   $4n+23=55$ $n=8$

7. What number has nineteen subtracted from it to make twenty-five?

   $n-19=25$ $n=44$

8. 56 is the total of twenty three amd three times a number. What is the number?

   $23+3n=56$ $n=11$

Challenge

Write some of your own questions for others to work out.

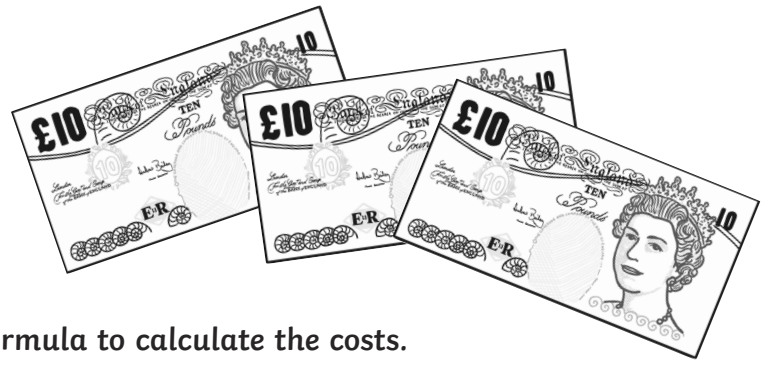
Express Missing Number Problems Algebraically Answers

1. A tile shop sells tiles online. Tiles that cover a square metre cost £m. Delivery is charged at £d.
   The area to be covered is a.
   Using the variables m, d and a, express the cost of tiles to cover area a.
   8 square metres of wall needs to be covered. The cost of the tiles is £9 per square metre.
   Delivery is £5. Calculate the cost of the tiles. £77
   A tiler decides to compare the cost of tiles from different suppliers.
   He uses the following table to calculate the different costs.

Supplier	m	a	d	cost
1	£6.00	12	£9.00	£81.00
2	£7.00	12	£5.00	£89.00
3	£8.00	12	£6.00	£102.00
4	£6.50	12	£2.00	£80.00
5	£7.50	12	£3.00	£93.00

Which supplier is the cheapest? Supplier 4
If the tiler wants tiles to cover 15m2, does the cheapest supplier remain the same?
no, supplier 1

2. A man wants to choose a plumber. He asks the plumbers what their hourly rate is, what their call out charge is and whether they offer a discount for early payment.
   Using letters to represent the four variables, express the cost of the plumber algebraically.
   cost=rh+c-d (where r=hourly rate, h-number of hours, c=call out charge, d=discount)
   Create a table with the costs of 5 different plumbers. You will need to write your own costs.



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