

GCSE Maths: Forming equations from words (Higher): answers

GCSE Maths - Linear Equations - Higher - Lesson 9.7

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch09-linear-equations/higher/forming-equations-from-words/

Exercise 9G Forming and solving equations from words Non-calculator

1 Write each phrase as an algebraic expression. Use x for the number.

(a) a number plus 5

Answer: $x + 5$

(b) 3 less than a number

Answer: $x - 3$

(c) twice a number

Answer: $2x$

(d) a number divided by 4

Answer: $\frac{x}{4}$

(e) 3 more than twice a number

Answer: $2x + 3$

(f) twice the sum of a number and 3

Answer: $2(x + 3)$

2 Write an equation for each sentence, solve it, and write down the number.

(a) Max thinks of a number. He adds 7 and gets 15.

Answer: The number is 8

(b) Mia thinks of a number. She subtracts 6 and gets 11.

Answer: The number is 17

(c) Half of a number, plus 3, equals 11.

Answer: The number is 16

(d) 5 less than 3 times a number is 22.

Answer: The number is 9

3 A plumber charges a call-out fee of £35 plus £25 for each hour of work. Sandeep's bill is £135. For how many hours did the plumber work?

Answer: 4 hours

4 Ben is 4 years older than Cara. The total of their ages is 30. How old is Cara?

Answer: 13 years old

5 A pen costs £ x . Three pens and a ruler costing £2 cost £11 altogether. Work out the cost of one pen.

Answer: £3

6 A phone plan costs 1200 pence a month plus 5 pence for every minute of calls. One month the bill is 1500 pence. How many minutes of calls were made?

Answer: 60 minutes

7 Zara is three times as old as her brother. The sum of their ages is 36. How old is Zara?

Answer: 27 years old

8 Sam buys 4 identical notebooks and a pen costing £3. He pays with £20 and gets £5 change. How much does one notebook cost?

Answer: £3

9 Three consecutive whole numbers add up to 51. Work out the smallest of the numbers.

Answer: 16

10 Gym A charges £20 to join and then £10 each month. Gym B charges £50 to join and then £5 each month. After how many months will the total cost for the two gyms be the same?

Answer: 6 months

11 Hana says: "5 less than a number is 17, so the equation is $5 - x = 17$." Explain what is wrong, then solve the correct equation.

Answer: 5 less than x is $x - 5$. The solution is $x = 22$.

12 Jay thinks of a number, doubles it and adds 3. Ria thinks of the same number, doubles it and adds 5. Show that they cannot get the same answer.

Answer: $2x + 3 = 2x + 5$ gives $3 = 5$, which is impossible.

13 A mother is three times as old as her daughter. In 8 years' time the mother will be twice as old as her daughter. How old is the daughter now?

Answer: 8 years old

14 A number is increased by 3 and the result is multiplied by 5. The answer is the same as when the number is multiplied by 8 and then 3 is subtracted. Find the number.

Answer: 6