

GCSE Maths Substitution and Formulae (Foundation): check-up and exam-style questions: answers

GCSE Maths - Substitution and Formulae - Foundation - Test yourself

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch08-substitution-formulae/foundation/check-up-and-exam-style-questions/

Exercise 8Z Check-up (non-calculator) Non-calculator

- 1 Work out the value of $5x + 2$ when $x = -3$.

Answer: -13

- 2 Use $v = u + at$ to work out v when $u = 4$, $a = 3$ and $t = 5$.

Answer: 19 m/s

- 3 Books cost £6 each and postage is £2. Write a formula for the total cost £ C of n books.

Answer: $C = 6n + 2$

- 4 Make x the subject of $y = 4x - 1$.

Answer: $x = \frac{y+1}{4}$

- 5 Make w the subject of $P = 2l + 2w$.

Answer: $w = \frac{P-2l}{2}$

- 6 Work out the value of $x^2 - 3x$ when $x = -2$.

Answer: 10

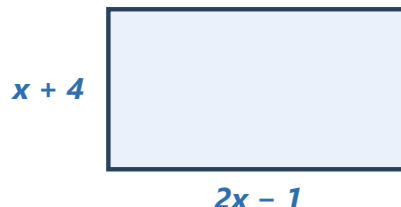
- 7 Use $E = \frac{1}{2}mv^2$ to work out E when $m = 6$ and $v = 4$.

Answer: 48 J

- 8 Make t the subject of $v = u + at$.

Answer: $t = \frac{v-u}{a}$

- 9 A rectangle has length $(2x - 1) \text{ cm}$ and width $(x + 4) \text{ cm}$. Write a simplified expression for its perimeter.



Answer: $6x + 6$

- 10 Make r the subject of $A = \pi r^2$.

Answer: $r = \sqrt{\frac{A}{\pi}}$

Exercise 8X Exam-style questions Non-calculator

- 1 Work out the value of $5a - 2b$ when $a = 4$ and $b = -3$. [2 marks]

Answer: 26

- 2 $v = u + at$. Work out the value of v when $u = 6$, $a = -2$ and $t = 4$. [3 marks]

Answer: -2 m/s

- 3 An electrician charges a £35 call-out fee plus £20 for each hour of work. [4 marks]

- (a) Write a formula for the total charge £ C for h hours.

Answer: $C = 35 + 20h$

- (b) Work out the charge for 3.5 hours.

Answer: £105

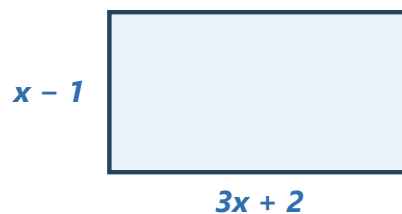
- 4 Make x the subject of $y = 5x - 7$. [2 marks]

Answer: $x = \frac{y + 7}{5}$

- 5 $A = \pi r^2$. Make r the subject of the formula. [2 marks]

Answer: $r = \sqrt{\frac{A}{\pi}}$

- 6 The diagram shows a rectangle with length $(3x + 2)$ cm and width $(x - 1)$ cm. Write a simplified expression for the perimeter of the rectangle. [3 marks]



Answer: $8x + 2$

- 7 Amy runs 5 km in 25 minutes. Use $s = d/t$ to work out her average speed in km/h. [3 marks]

Answer: 12 km/h

- 8 Show that $3(x + 4) - 2(x + 1) = x + 10$. [2 marks]

Answer: $x + 10$

- 9 The kinetic energy E joules of an object of mass m kg moving at v m/s is $E = \frac{1}{2}mv^2$. [4 marks]

- (a) Make m the subject of the formula.

Answer: $m = \frac{2E}{v^2}$

(b) Work out m when $E = 80$ and $v = 4$.

Answer: 10 kg

10 Work out the value of $2x^2 - x$ when $x = -4$. [2 marks]

Answer: 36

11 Maya says, "When $x = -2$, the value of $-x^2$ is 4." Is Maya correct? You must show your working. [2 marks]

Answer: No, it is -4

12 Firm A hires a ladder for £20 plus £5 per hour. Firm B hires the same ladder for £8 plus £8 per hour. Show that the two firms charge the same for 4 hours. [3 marks]

Answer: Both £40