

Name

ANSWERS

Class



MATHS TEACHER HUB

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Simplifying algebra

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out**.
- If the question is a 1F question you are not allowed to use a calculator.
- If the question is a 2F or a 3F question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.



1 (a) Simplify $5p - 3p + p$

$$3p$$

(1)

(b) Simplify $m^3 + m^3$

$$2m^3$$

(1)

(c) Simplify $10 + 3c + 5d - 7c + d$

$$10 - 4c + 6d$$

(2)

June 2017 – Paper 2F

(Total for Question 1 is 4 marks)

2 Simplify $e + e + e + e$

$$4e$$

June 2022 – Paper 1F

(Total for Question 2 is 1 mark)

2 Simplify $y + 3y - 2y$



2y

November 2017 – Paper 3F

(Total for Question 2 is 1 mark)

2 (a) Simplify $8x - 3x + 2x$



7x

(1)

(b) Simplify $4y \times 2y$

8y²

(1)

Sample 1 – Paper 3F

(Total for Question 2 is 2 marks)

3 Simplify $3 \times a \times 4$

12a

November 2023 – Paper 1F

(Total for Question 3 is 1 mark)

3 Simplify $m + m + m + m$



4m

June 2023 – Paper 3F

(Total for Question 3 is 1 mark)

3 Simplify $3e - e + 4e$



6e

May 2020 – Paper 2F

(Total for Question 3 is 1 mark)

3 (a) Simplify $3f \times 5g$



15fg
(1)

(b) Simplify $t \times t$

t²
(1)

(c) Simplify $\frac{2n + 6n}{2} = \frac{8n}{2}$

4n
(1)

November 2017 – Paper 2F

(Total for Question 3 is 3 marks)

3 Simplify $7 \times e \times f \times 8$

56ef
(1)

June 2017 – Paper 1F

(Total for Question 3 is 1 mark)

4 Simplify $7a + a - 5a$



3a

June 2024 – Paper 3F

(Total for Question 4 is 1 mark)

4 Simplify $3 \times 4t$



12t

June 2023 – Paper 2F

(Total for Question 4 is 1 mark)

4 Simplify $2m \times 3$



6m

June 2022 – Paper 3F

(Total for Question 4 is 1 mark)

4 (a) Simplify $m + m + m + m$



4m

(1)

(b) Simplify $12p \div 4$

3p

(1)

November 2021 – Paper 2F

(Total for Question 4 is 2 marks)

4 (a) Simplify $5f - f + 2f$



6f

(1)

(b) Simplify $2 \times m \times n \times 8$

16mn

(1)

(c) Simplify $t^2 + t^2$

2t²

(1)

Specimen 1 – Paper 2F

(Total for Question 4 is 3 marks)

5 Complete the statement below to make it correct.



$$\underline{2} \times m = 2m$$

May 2024 – Paper 2F

(Total for Question 5 is 1 mark)

5 Simplify $3 \times w \times 5 \times t$

$$\underline{15wt}$$

November 2022 – 1F

(Total for Question 5 is 1 mark)

6 (a) Simplify $3 \times 4t$

$$\underline{12t}$$

(1)

(b) Simplify $8a - 3a + 2a$

$$\underline{7a}$$

(1)

May 2018 – Paper 1F

(Total for Question 6 is 2 marks)

6 (a) Simplify $a \times b \times 4$



$$4ab$$

(1)

(b) Simplify $4x + 3 - x + 5$

$$3x + 8$$

(2)

November 2021 – Paper 3F

(Total for Question 6 is 3 marks)

7 (a) Simplify $3m - m - m + 3m$



$$4m$$

(1)

(b) Simplify $2 \times n \times p \times 4$

$$8np$$

(1)

November 2018 – Paper 2F

(Total for Question 7 is 2 marks)

8 (a) Simplify $a \times b \times 7$



$$7ab$$

(1)

(b) Simplify $y \times y \times y$

$$y^3$$

(1)

(c) Simplify fully $\frac{e \times \cancel{e} \times \cancel{e} \times f}{\cancel{e} \times \cancel{e} \times f \times f}$

$$\frac{e}{f}$$

(2)

June 2019 – Paper 2F

(Total for Question 8 is 4 marks)

9 Simplify $4e + 6f + 7e - f$



$$11e + 5f$$

June 2019 – Paper 3F

(Total for Question 9 is 2 marks)

13 (a) Simplify $8h^3 + 14h^3 - 2h^3$



$$20h^3$$

(1)

(b) Simplify $(9y + 12y) \div 3$

$$21y \div 3$$

$$7y$$

(1)

November 2023 – Paper 3F

(Total for Question 13 is 2 marks)

13 (a) Simplify $\frac{15a}{3}$

$$5a$$

(1)

(b) Simplify $19 + 5b + 4c - 7b + c$

$$19 - 2b + 5c$$

(2)

June 2023 – Paper 1F

(Total for Question 13 is 3 marks)

13 (a) Simplify $2a \times 5b$

$$10ab$$

(1)

(b) Simplify $3x + 2y + 5x - y$

$$8x + y$$

(2)

November 2019 – Paper 1F

(Total for Question 13 is 3 marks)



13 (a) Simplify $2c \times 3d$

$$6cd$$

(1)

$$T = x + 2y$$

$$x = 3 \text{ and } y = -4$$

(b) Work out the value of T .

$$3 + 2(-4)$$

$$3 - 8$$

$$T = -5$$

(2)

June 2024 – Paper 2F

(Total for Question 13 is 3 marks)

14 Simplify $3x + 5y + 2x - 4y$



$$\underline{5x + y}$$

(2)

May 2020 – Paper 3F

(Total for Question 14 is 2 marks)

14 Simplify $4c + 7d + 3c - d$



$$\underline{7c + 6d}$$

(2)

November 2022 – 2F

(Total for Question 14 is 2 marks)

17 (a) Simplify $7x + 2y - 3x + 4y$



$$\underline{4x + 6y}$$

(2)

Specimen 2 – Paper 2F

(Total for Question 17 is 2 marks)