Name	Class

MATHS TEACHER HUB

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Expanding brackets

(9 – 1) Topic booklet

Higher

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 **1H** question you are not allowed to use a calculator.
•If the question is a **2H** or a **3H** 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) Expand and simplify $3(2y - 5) + 7(y + 2)$

.....

(2)

November 2023 – Paper 2H **(Total for Question 1 is 2 marks)**

1 Expand and simplify $4(x + 3) + 7(4 - 2x)$

.....

(2)

June 2022 – Paper 2H **(Total for Question 1 is 2 marks)**

1 Expand and simplify $(x + 5)(x - 9)$

.....

(2)

November 2019 – Paper 3H **(Total for Question 1 is 2 marks)**

1 Expand $4p(p^2 + 3p)$

.....

(2)

June 2023 – Paper 3H **(Total for Question 1 is 2 marks)**

2 Expand and simplify $(m + 7)(m + 3)$

.....

Sample 1 – Paper 1H **(Total for Question 2 is 2 marks)**

2 Expand and simplify $5(p + 3) - 2(1 - 2p)$

.....

June 2018 – Paper 3H **(Total for Question 2 is 2 marks)**

3 Expand and simplify $3(y - 2) + 5(2y + 1)$

.....

(2)

Specimen 2 – Paper 2H **(Total for Question 3 is 2 marks)**

9 Expand and simplify $(x + 7)(x - 2)(x + 3)$

.....

November 2023 – Paper 2H **(Total for Question 9 is 3 marks)**

9 Expand and simplify $(x - 2)(2x + 3)(x + 1)$

.....

(3)

November 2018 – Paper 3H **(Total for Question 9 is 3 marks)**

10 Show that $(x + 1)(x + 2)(x + 3)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are positive integers.

May 2017 – Paper 1H **(Total for Question 10 is 3 marks)**

12 Expand and simplify $(x - 2)(3x + 2)(2x + 3)$

.....

November 2021 – Paper 2H **(Total for Question 12 is 3 marks)**

12 Expand and simplify $(x - 3)(2x + 3)(4x + 5)$

.....

(3)

November 2020 – Paper 3H **(Total for Question 12 is 3 marks)**

12 Show that $(x - 1)(x + 3)(x - 5)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are integers.

June 2023 – Paper 3H **(Total for Question 12 is 3 marks)**

13 Show that

$$(3x - 1)(x + 5)(4x - 3) = 12x^3 + 47x^2 - 62x + 15$$

for all values of x.

Specimen 1 – Paper 2H **(Total of Question 13 is 3 marks)**

14 Expand and simplify $(3x - 1)(2x + 3)(x - 5)$

.....

(Total for Question 14 is 3 marks)

14 Show that $(m + 4)(2m - 5)(3m + 1)$ can be written in the form $am^3 + bm^2 + cm + d$ where a, b, c and d are integers.

(3)

(Total for Question 14 is 3 marks)

14 Expand and simplify $(x + 2)(x - 3)(x + 4)$

(3)

November 2022 – Paper 3H **(Total for Question 14 is 3 marks)**

15 Expand and simplify $(3x + 2)(2x + 1)(x - 5)$

November 2019 – Paper 2H **(Total for Question 15 is 3 marks)**

16 (a) Prove that

$$(2m + 1)^2 - (2n - 1)^2 = 4(m + n)(m - n + 1)$$

(3)

Sophia says that the result in part (a) shows that the difference of the squares of any two odd numbers must be a multiple of 4

(b) Is Sophia correct?
You must give reasons for your answer.

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(1)

November 2022 – Paper 1H **(Total for Question 16 is 4 marks)**

18 Show that $(2x + 1)(x + 3)(3x + 7)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are integers.

(3)

June 2019 – Paper 3H **(Total for Question 18 is 3 marks)**