

Name:

Date:

Indices

GCSE

Edexcel
Mathematics
Grade (9-1)

Mark

Score (%)

<hr/> 54	
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Materials

For this paper you must have:

- Ruler
- Pencil, Rubber, Protractor and Compass
- Scientific calculator, which you are expected to use when appropriate

Instructions

- Answer all questions
- Answer questions in the space provided
- All working must be shown
- Do all rough work in this book. Cross out any rough work you don't want to be marked

Information

- The marks for the questions are shown in brackets

1 (a) Simplify $x^5 \times x^3$

.....
(1)

(b) Simplify $(y^3)^2$

.....
(1)

(c) Simplify $d^9 \div d^4$

.....
(1)

(Total for question 1 is 3 marks)

2 (a) Simplify $a^9 \times a^4$

.....
(1)

(b) Simplify $(b^2c)^2$

.....
(2)

(c) Simplify $\frac{w^7}{w^4}$

.....
(1)

(Total for question 2 is 4 marks)

3 (a) Simplify $3x^2 \times 5x^6$

.....
(2)

(b) Simplify $15p^3 \div 3p^4$

.....
(2)

(Total for question 3 is 4 marks)

4 (a) Simplify $(2a^2)^3$

(b) Simplify $9y^2z^6 \div 3yz^3$

.....
(2)

.....
(2)

(Total for question 4 is 3 marks)

5 Simplify $5m^2n^3 \times 3mn^4$

.....

(Total for question 5 is 2 marks)

6 (a) Write down the value of 2^{-1}

(b) Write down the value of 5^0

.....
(1)

.....
(1)

(Total for question 6 is 2 marks)

7 Work out the value of $5^2 \times 2^3$

.....

(Total for question 7 is 1 mark)

8 (a) Simplify $\frac{m^9 \times m}{m^5}$

.....
(2)

(b) Simplify $\frac{w^{10} \times w^{-5}}{w^4}$

.....
(2)

(Total for question 8 is 4 marks)

9 $y^2 \times y^a = y^7$

(a) Find the value of a .

$(y^4)^b = y^{12}$

(b) Find the value of b .

.....
(1)

.....
(1)

(Total for question 9 is 2 marks)

10 Given $\frac{x^6}{x^a} = x^8$

(a) Find the value of a .

$a =$
(1)

(b) Simplify $(2x^2)^4$

.....
(2)

(Total for question 10 is 3 mark)

11 (a) Write $\frac{2^4 \times 2^5}{2^2}$ as a power of 2

.....
(2)

(b) Write down the value of 2^{-3}

.....
(1)

(c) Write down the value of 2^0

.....
(1)

(Total for question 11 is 5 marks)

12 Work out the value of $(3^2)^3$

.....

(Total for question 12 is 2 marks)

13 Work out the value of $\frac{3^9 \times 3^{-5}}{3^4}$

.....

(Total for question 13 is 2 marks)

14 (a) Simplify $2p^3 \times p^5$

.....
(1)

(b) Simplify $(4ab^2)^3$

.....
(2)

(c) Simplify $\frac{10m^5n^4}{2m^2n}$

.....
(2)

(Total for question 14 is 5 marks)

15 (a) Simplify $5c^2d^3 \times 2d$

.....
(1)

(b) Write 64×4^5 as a power of 4

.....
(2)

(c) Simplify $p^3 \times (p^5)^2$

.....
(2)

(Total for question 15 is 5 marks)

16 (a) Simplify $9p^3 \times 2p^{-2}$

(b) Simplify $(5x^3y^2z)^3$

(c) $p^3 \times p^5 = p^{12} \times p^y$

Find the value of y

.....
(2)

.....
(2)

.....
(2)

(Total for question 16 is 6 marks)

17 (a) Simplify $a^{\frac{1}{2}} \times a^{\frac{1}{2}}$

(a) Simplify $b^{\frac{2}{3}} \times b^{\frac{4}{3}}$

(a) Simplify $6c^{\frac{2}{3}} \div 3c^{\frac{5}{2}}$

.....
(1)

.....
(1)

.....
(2)

(Total for question 17 is 4 marks)

18 (a) Write down 8 as a power of 2.

.....
(1)

(b) Simplify $(4y^3z^{-2})^{-2}$

.....
(2)

(Total for question 18 is 3 marks)

19 (a) Write down the reciprocal of 8.

.....
(1)

(b) Write down the reciprocal of 2 as a power of 2.

.....
(1)

(c) Write down the reciprocal of 9 as a power of 3.

.....
(2)

(Total for question 19 is 4 marks)