Name:

GCSE (1 - 9)

Indices

Instructions

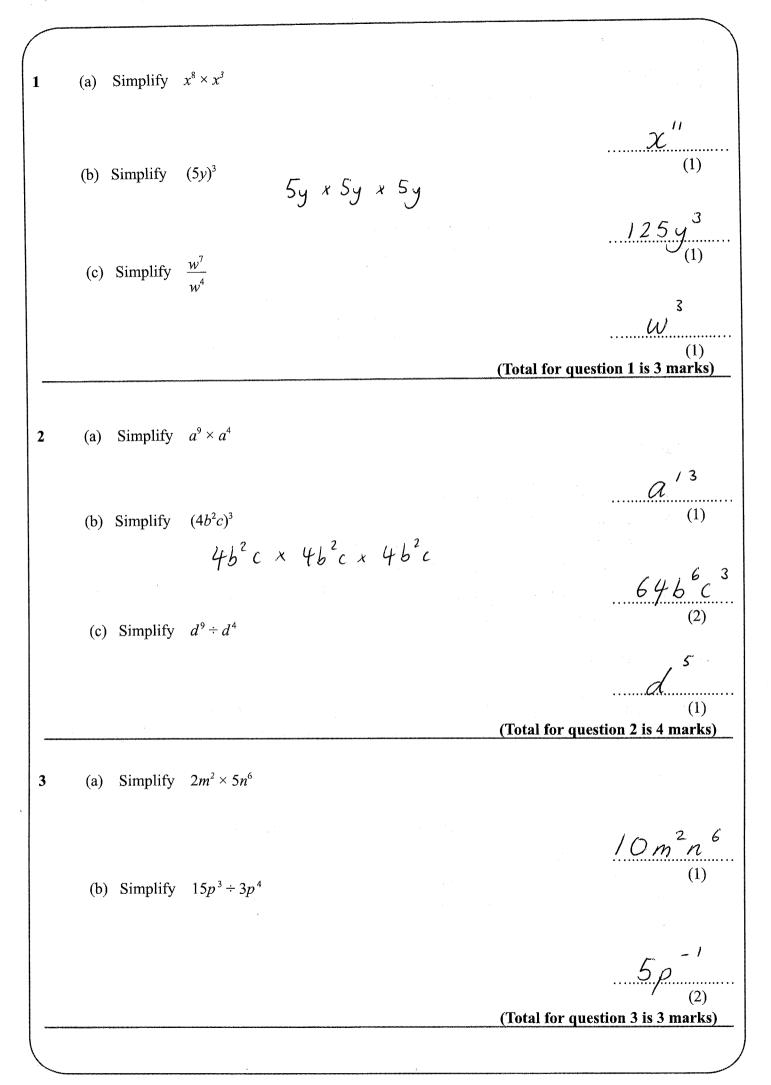
- Use black ink or ball-point pen.
- Answer all Questions.
- Answer the Questions in the spaces provided
- there may be more space than you need.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- · You must show all your working out.

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



4	(a) Simplify $(t^3)^4$	en e
		+ 12
	(b) Simplify $12m^2n^6 \div 3mn^4$	(1)
		$4mn^2$ (2)
		(Total for question 4 is 3 marks)
5	Simplify $5m^2n^3 \times 3mn^4$	
		15 m 3 n
		(Total for question 5 is 2 marks)
6	(a) Write down the value of 5 ⁻³	
		, 25
	(b) Write down the value of 5°	(1)
		(Total for question 6 is 2 marks)
•		(Total for question 6 is 2 marks)
7	Work out the value of $5^2 \times 2^3$	
	25 × 8	
		200
		(Total for question 7 is 1 mark)

8 Write down the value of 2^{-3}



(Total for question 8 is 1 mark)

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

(a) Find the value of a.

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

5

(b) Find the value of b.

(Total for question 9 is 2 marks)

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

Find the value of a.

$$a = \dots 2$$
 (1)

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

$$16 \, m^8$$
 (2)

(Total for question 10 is 3 marks)

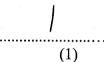
(a) Write $\frac{3^4 \times 3^5}{3^2}$ as a power of 3

$$\frac{3^9}{3^2} = 3^7$$

37

(b) Write down the value of 3⁻³

(c) Write down the value of 3°



(Total for question 11 is 4 marks)

12 Work out the value of $\frac{2^9 \times 2^{-2}}{2^4}$

$$\frac{2^{7}}{2^{4}} = 2^{3} = 8$$



(Total for question 12 is 2 marks)

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

$$4^3 = 64$$

64

(Total for question 13 is 1 mark)

- 14 (a) Simplify $p^3 \times p^5$
 - (b) Simplify $(4ab^2)^3$

- (1)
- 64a³b⁶

(c) Simplify $\frac{16m^7n^3}{4m^3n}$

4m⁴n²
(2)

(Total for question 14 is 5 marks)

15
$$1000^4 = 10^x$$

$$\left(10^3\right)^7 = 10^{-3}$$

(Total for question 15 is 1 mark)

Work out the value of $\frac{2^3 \times 2}{2^5}$

Find the value of x.

$$\frac{2^4}{2^5} = 2^{-1} = \frac{1}{2}$$

$$\frac{1}{2}$$

(Total for question 16 is 2 marks)

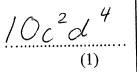
Write down the reciprocal of 8

8

(Total for question 17 is 1 mark)

18	(a) Simplify $9p^3 \times 2p^{-2}$	
		18p
	(b) Simplify $(5x^3y^2)^3$	(1)
		175296
	() 3 5 12 n	$125x^{9}y^{6}$
	(c) $p^3 \times p^5 = p^{12} \times p^y$	
	Find the value of y	
	$p^8 = p^{12} \times p^9$	
		$-\varphi$ (2)
		(Total for question 18 is 5 marks)
19	$10^{x}=1$	
	Write down the value of x .	
		(Total for question 19 is 1 mark)
20	Write $5^4 \times 5$ as a power of 5	
		5
***************************************		(Total for question 20 is 1 mark)
21	Write down the reciprocal of 2	
·		<u>/</u>
		(Total for question 21 is 1 mark)

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



(b) Write 64×4^5 as a power of 4

4 ⁸ (2)

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

$$P^3 \times P^{0}$$

(2)

(Total for question 22 is 5 marks)

 $23 p^9 \times p^5 = p^x$

Write down the value of x

(Total for question 23 is 1 mark)

24 Write down the reciprocal of $\frac{1}{3}$



(Total for question 24 is 1 mark)

Simplify $\frac{10p^3q^5r}{4p^3q^6}$

 $\frac{50}{29}$

(Total for question 25 is 2 marks)

or 2.5 rg-1