

SMART EXAM RESOURCES
STAGE 9 MATHEMATICS
TOPIC QUESTIONS
TOPIC: INDICES
SET-1

1 Write as a single power of 3

$$9 \times 3^5$$

..... [1]

Mark Scheme:

Part	Mark	Answer	Further Information
	1	3^7	
Total	1		

- 2 (a) Here is a relationship involving powers of 7

$$7^x \times 7^y = 7^8$$

x and y are positive whole numbers each greater than 1

Write down **one** possible pair of values for x and y .

$$x = \underline{\hspace{10em}}$$

$$y = \underline{\hspace{10em}} [1]$$

- (b) Here is another relationship involving powers of 5

$$5^m \div 5^n = 5^4$$

m and n are positive whole numbers each greater than 1

Write down **one** possible pair of values for m and n .

$$m = \underline{\hspace{10em}}$$

$$n = \underline{\hspace{10em}} [1]$$

Mark Scheme:

Part	Mark	Answer	Further Information
(a)	1	Any of these answers $x = 2, y = 6$ $x = 3, y = 5$ $x = 4, y = 4$ $x = 5, y = 3$ $x = 6, y = 2$	
(b)	1	Any pair of values for m and n such that $m - n = 4$ and m, n are whole numbers greater than 1 e.g. $m = 6, n = 2$ $m = 14, n = 10$	
Total	2		

3 $6 \times 6 \times 6^a = 1$

Work out the value of a .

$a =$ _____ [1]

Mark Scheme:

-2	1
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4

Simplify these power calculations.

Give each answer as a power of 6

(a) $6^8 \div 6^2$

_____ [1]

(b) $3 \times 2 \times 6^3 \times 6^4$

_____ [1]

Mark Scheme:

(a)	6^6	1
(b)	6^8	1

5 Find the value of x .

$$\frac{9^3 \times 9}{9^6} = 9^x$$

$x =$ 1]

Mark Scheme:

$(x \Rightarrow) -2$	1	Do not accept 9^{-2}
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