

# Indices

## Difficulty: Easy

### Question Paper 3

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Algebra and graphs
Sub-Topic	Indices
Paper	Paper 2
Difficulty	Easy
Booklet	Question Paper 3

**Time allowed:** 48 minutes

**Score:** /37

**Percentage:** /100

#### Grade Boundaries:

##### CIE IGCSE Maths (0580)

A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

##### CIE IGCSE Maths (0980)

9	8	7	6	5	4	3
>94%	85%	77%	67%	57%	47%	35%

## Question 1

Find the value of  $\left(\frac{27}{8}\right)^{-\frac{4}{3}}$ .

Give your answer as an exact fraction.

[2]

## Question 2

(a) Find  $m$  when  $4^m \times 4^2 = 4^{12}$ .

[1]

(b) Find  $p$  when  $6^p \div 6^5 = \sqrt{6}$ .

[1]

### Question 3

Simplify

(a)  $32x^8 \div 8x^{32}$ ,

[2]

(b)  $\left(\frac{x^3}{64}\right)^{\frac{2}{3}}$ .

[2]

## Question 4

Simplify the following.

(a)  $(3x^3)^3$  [2]

(b)  $(125x^6)^{\frac{2}{3}}$  [2]

## Question 5

Find the value of  $n$  in the following equations.

(a)  $2^n = 1024$  [1]

(b)  $4^{2n-3} = 16$  [2]

## Question 6

Simplify

(a)  $\left(\frac{16}{81}x^{16}\right)^{\frac{1}{2}}$ , [2]

(b)  $\frac{16y^{10} \times 4y^{-4}}{32y^7}$ . [2]

## Question 7

Simplify

(a)  $\left(\frac{p^4}{16}\right)^{0.75}$ , [2]

(b)  $3^2 q^{-3} \div 2^3 q^{-2}$ . [2]

### Question 8

Write  $2^8 \times 8^2 \times 4^{-2}$  in the form  $2^n$ . [2]

### Question 9

Simplify  $(27x^3)^{\frac{2}{3}}$ . [2]



**Question 10**

(a) Simplify  $(27x^6)^{\frac{1}{3}}$ .

[2]

(b)  $(512)^{-\frac{2}{3}} = 2^p$ . Find  $p$ .

[2]

## Question 11

(a)  $\sqrt{32} = 2^p$ . Find the value of  $p$ .

[2]

(b)  $\sqrt[3]{8} = 2^q$ . Find the value of  $q$ .

[2]

## Question 12

Simplify

$$\frac{2}{3} p^{12} \times \frac{3}{4} p^8.$$

[2]