

N105 Indices 1

Q1.

Work out the value of 3^5

.....

(Total for question = 1 mark)

Q2.

(a) Work out the value of 3.1^4

.....
(1)

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

.....
(1)

(c) Simplify t^8/t^3

.....
(1)

$$2^3 \times 2^n = 2^9$$

(d) Work out the value of n .

.....
(1)

(Total for Question is 4 marks)

Q3.

Work out the value of $\frac{3^7 \times 3^{-2}}{3^3}$

.....
(Total for question = 2 marks)

Q4.

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

.....
(2)

(b) Write down the value of 12^0

.....
(1)

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

.....
(1)

(Total for question = 4 marks)

Q5.

Write these numbers in order of size.
Start with the smallest number.

5^{-1}

0.5

-5

5^0

(Total for Question is 2 marks)

Q6.

(a) Simplify $5^4 \times 5^6$

.....
(1)

(b) Simplify $7^5 \div 7^2$

.....
(1)

(Total for Question is 2 marks)

Q7.

(a) Simplify $a^4 \times a^3$

.....
(1)

(b) Simplify $(b^2)^7$

.....
(1)

(c) Write down the value of 3^0

.....
(1)

(d) Write down the value of 4^{-1}

.....
(1)

(Total for question = 4 marks)

Q8.

$$p^3 \times p^x = p^9$$

(a) Find the value of x .

$x =$
(1)

$$(7^2)^y = 7^{10}$$

(b) Find the value of y .

$y =$
(1)

$100^a \times 1000^b$ can be written in the form 10^w

(c) Show that $w = 2a + 3b$

(2)

(Total for question = 4 marks)

Q9.

(a) Simplify $\frac{x^9}{x^2}$

.....
(1)

(b) Write $\frac{7^8 \times 7^4}{7^3}$ as a single power of 7

.....
(2)

(Total for question = 3 marks)

Q10.

$$\frac{8}{2^7} = 2^n$$

(a) Find the value of n .

$n =$
(2)

$$(13^{-6})^4 \times 13^5 = 13^k$$

(b) Find the value of k .

$k =$
(2)

(Total for question = 4 marks)

Q11.

(a) Write $2^3 \times 2^6$ as a single power of 2

.....
(1)

(b) Write $\frac{3^9}{3^4}$ as a single power of 3

.....
(1)

(c) $\frac{5^n}{5^4 \times 5^6} = 5^3$.
Find the value of n .

$n =$
(2)

(Total for question = 4 marks)

Q12.

(a) Find the value of the cube of 4

.....
(1)

(b) Write $3 \times 3 \times 3 \times 3 \times 3$ as a single power of 3

.....
(1)

(c) Write $\frac{7^5 \times 7^9}{7^6}$ as a single power of 7

.....
(2)

(Total for Question is 4 marks)

Q13.

(a) Simplify, leaving your answers in index form,

(i) $6^5 \times 6^2 \times 6$

(ii) $(9^7)^2$

.....

.....

(2)

(b) $\frac{5^n \times 5^3}{5^6} = 5^4$

Find the value of n .

$n =$

(2)

(Total for question = 4 marks)

Q14.

(a) $A = 2^2 \times 3 \times 5^2$

$B = 2^3 \times 5$

(i) Find a common factor of A and B .

(ii) Find a common multiple of A and B .

(3)

(b) $\frac{8^2 \times 8^3}{8^4} = 2^n$

Find the value of n .

$n =$

(2)

(Total for question = 5 marks)