

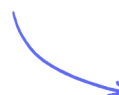
Exam Questions

Algebraic Roots & Indices

Algebraic Roots & Indices

Easy (13 questions)	/17
Medium (9 questions)	/16
Hard (8 questions)	/16
Total Marks	/49

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Easy Questions

1 Find the value of a^0

(1 mark)

2 Simplify x^1

(1 mark)

3 Simplify $t^5 \times t^3$

(1 mark)

4 $6^{10} \times 6^x = 6^2$

Find the value of x .

$x = \dots\dots\dots$

(1 mark)

5 Find the value of x when $5^x \times 5^3 = 5^{12}$

$x = \dots\dots\dots$

(1 mark)

6 (a) Simplify $p^2 \times p^4$

(1 mark)

(b) Simplify $m^{15} \div m^5$

(1 mark)

(c) Simplify $(k^3)^5$

(1 mark)

7 $9^{12} \div 9^w = 9^4$

Find the value of w .

$w = \dots\dots\dots$

(1 mark)

8 Simplify $(w^5)^4$

(1 mark)

9 (a) Simplify

$t^{21} \div t^7$

(1 mark)

(b) $(u^5)^5$

(1 mark)

10 Simplify $(x^8)^3$

(1 mark)

11 Simplify $(y^5)^3$

(1 mark)

12 Simplify $(x^5)^2$.

(1 mark)

13 (a) $x^3 \times x^6 = x^m$

Find the value of m .

$$m = \dots\dots\dots$$

(1 mark)

(b) $(x^2)^n = x^{12}$

Find the value of n .

$$n = \dots\dots\dots$$

(1 mark)

Medium Questions

1 Simplify $\frac{f^8 g^3}{f^2 g^6}$

(2 marks)

2 Simplify $-6x^5 \times 3x^{-7}$

(2 marks)

3 $(3^4)^n = 3^{12}$

Find the value of n

$n = \dots\dots\dots$

(1 mark)

4 i) $2^8 \times 2^m = 2^6$

Work out the value of m .

$m = \dots\dots\dots$ [1]

ii) $5^n \div 5^4 = 5^6$

Work out the value of n .

$n = \dots\dots\dots$ [1]

(2 marks)

5 Simplify $5 \times x^0$

[1]

(1 mark)

6 Simplify $2x^3 \times 3x^2$

(2 marks)

7 Simplify $5m^2 \times 2m^3$

(2 marks)

8 (i) Find the value of k when $x^{10} \div x^k = x^3$.

$k = \dots\dots\dots$ [1]

(ii) Find the value of n when $y^{10} \times y^n = 1$.

$n = \dots\dots\dots$ [1]

(2 marks)

9 Simplify $3b^2c \times 10bc^5$

(2 marks)

Hard Questions

1 (a) Simplify $5a^6b^3 \times 4a^{-4}b^4$

(2 marks)

(b) Simplify $\frac{18x^8y^3}{6x^5y^7}$

(2 marks)

2 $10000^m \times 1000^n$ can also be written in the form 10^y

Show that $y = 4m + 3n$

(2 marks)

3 Simplify $(2f^3g^{-2})^5$

(2 marks)

4 Simplify $4p^5q^3 \times p^2q^{-4}$

(2 marks)

5 Simplify $8t^8 \div 4t^4$.

(2 marks)

6 Simplify $x^3y^4 \times x^5y^3$

(2 marks)

7 Simplify $w^7 \div w^{-2}$

(1 mark)

8 $4^w = \frac{1}{16}$

Find the value of w .

$w = \dots\dots\dots$

(1 mark)