

A-Level Starter Activity



Topic: Simple Index Laws

Chapter Reference: Pure 1, Chapter 1

8
minutes

1. Find the value of $125^{-\frac{2}{3}}$

(2)

2. Find the value of $\left(\frac{8}{27}\right)^{\frac{2}{3}}$

(2)

3. Simplify the expression $\frac{abc^2 \times a^3c}{ab^2 \times (c^2)^3}$

(2)

4. Write $9^5 \times 3^{-5}$ as a power of 3

(2)

5. Given that $32\sqrt{2} = 2^a$, find the value of a

(2)

Solutions

1.

$125^{-\frac{2}{3}} = \frac{1}{125^{\frac{2}{3}}} = \frac{1}{(\sqrt[3]{125})^2}$	M1
$= \frac{1}{25}$	M1

2.

$\left(\frac{8}{27}\right)^{\frac{2}{3}} = \frac{8^{\frac{2}{3}}}{27^{\frac{2}{3}}} = \frac{(\sqrt[3]{8})^2}{(\sqrt[3]{27})^2}$	M1
$= \frac{4}{9}$	M1

3.

$\frac{abc^2 \times a^3c}{ab^2 \times (c^2)^3} = \frac{a^4bc^3}{ab^2c^6}$	M1
$= a^3b^{-1}c^{-3}$ or $\frac{a^3}{bc^3}$	M1

4.

$9^5 \times 3^{-5} = (3^2)^5 \times 3^{-5} = 3^{10} \times 3^{-5}$	M1
$= 3^5$	M1

5.

$32\sqrt{2} = 2^5 \times 2^{\frac{1}{2}}$	M1
$= 2^{\frac{11}{2}}$ Where a is $\frac{11}{2}$	M1

