Exercise 1

Paper 1 style · No calculator

1 5 marks SL 1.5 · 1.7 ●●○ Typical

Answer the following without a calculator.

(a) Find the value of $16^{\frac{3}{4}}$. **[1]**

(b) Find the value of $\left(\frac{1}{9}\right)^{-\frac{3}{2}}$. **[1]**

(c) Write $9^x \times 27^{x+1}$ as a power of 3. **[2]**

(d) Hence solve $9^x \times 27^{x+1} = 3^{13}$. **[1]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

8

A1

Total 1 mark

MARKSCHEME (b)

27

A1

Total 1 mark

MARKSCHEME (c)

$3^{2x} \times 3^{3(x+1)}$

(M1)

$= 3^{5x+3}$

A1

Total 2 marks

MARKSCHEME (d)

$5x + 3 = 13,\ x = 2$

A1

Total 1 mark