

MEI Core 1 Indices Questions Jan 05 - May 09

**1** Find the value of the following.

(i)  $\left(\frac{1}{3}\right)^{-2}$  [2]

(ii)  $16^{\frac{3}{4}}$  [2]

**2** Simplify the following.

(i)  $a^0$  [1]

(ii)  $a^6 \div a^{-2}$  [1]

(iii)  $(9a^6b^2)^{-\frac{1}{2}}$  [3]

**3** Simplify the following.

(i)  $\frac{16^{\frac{3}{4}}}{81^{\frac{1}{4}}}$  [2]

(ii)  $\frac{12(a^3b^2c)^4}{4a^2c^6}$  [3]

**4** Find the value of each of the following, giving each answer as an integer or fraction as appropriate.

(i)  $25^{\frac{3}{2}}$  [2]

(ii)  $\left(\frac{7}{3}\right)^{-2}$  [2]

**5** (i) Simplify  $3a^3b \times 4(ab)^2$ . [2]

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**6** (i) Find  $a$ , given that  $a^3 = 64x^{12}y^3$ . [2]

(ii) Find the value of  $\left(\frac{1}{2}\right)^{-5}$ . [2]

**7** (i) Write down the value of  $\left(\frac{1}{4}\right)^0$ . [1]

(ii) Find the value of  $16^{-\frac{3}{2}}$ . [3]

**8** (i) Find the value of  $\left(\frac{1}{25}\right)^{-\frac{1}{2}}$ . [2]

(ii) Simplify  $\frac{(2x^2y^3z)^5}{4y^2z}$ . [3]

**9** (i) Express  $125\sqrt{5}$  in the form  $5^k$ . [2]

(ii) Simplify  $(4a^3b^5)^2$ . [2]

**10** Find the value of each of the following.

(i)  $5^2 \times 5^{-2}$  [2]

(ii)  $100^{\frac{3}{2}}$  [1]