

Section 2: Indices

Exercise level 2

Do not use a calculator in this exercise.

1. Simplify the following:

$$(i) \frac{2^5 \times 4^{1/2}}{2} \quad (ii) (3^5)^{3/2} \times 9^{-7/4} \quad (iii) \sqrt{\frac{x^{4/3}}{x^{1/3} \times x^{8/3}}}$$

2. Simplify:

$$(i) \frac{16x^{\frac{1}{2}}}{2^3 x^{-\frac{1}{2}}} \quad (ii) \frac{x^{\frac{5}{4}} x^{-1}}{\sqrt[4]{x^3}}$$

3. Simplify the following:

$$(i) 3^{5/2} - 3^{1/2} \quad (ii) 2^{1/2} + 2^{3/2} + 2^{5/2} \quad (iii) y^{1/2} - y^{-1/2}$$

4. Simplify:

$$(i) \frac{2^{\frac{5}{2}} - 2^{\frac{3}{2}}}{2^{\frac{1}{2}}} \\ (ii) \left(\frac{x^{\frac{7}{4}} - x^{\frac{3}{4}} + x \times x^{\frac{7}{4}}}{x^{\frac{1}{4}}} \right)^2 \\ (iii) \left[\frac{y^{\frac{1}{2}}}{x^{\frac{3}{4}}} - \frac{x^{\frac{5}{4}}}{y^{\frac{3}{2}}} \right]^4$$