Indices

i. **Find the value of the following expressions:**

- $49^{1/2}$
- $1000^{2/3}$
- $32^{1/5}$
- $\left(\dfrac{1}{4}\right)^{1/2}$

- $8^{2/3}$
- $81^{3/4}$
- $4^{-1/2}$
- $9^{-1\frac{1}{2}}$
- $\left(\dfrac{4}{9}\right)^{-1/2}$

ii. **Simplify the following expressions as much as possible:**

- $a^2 \times a^{-2}$
- $b^{-1/3} \times b^{4/3}$
- $\dfrac{\left(c^{1/4}\right)^2 \times c^{1\frac{1}{2}}}{c}$

- $\dfrac{d^{1/2} \times d^{2/3}}{d^{1/6}}$
- $e^{1/2}\left(e^{3/2} - e^{-1/2}\right)$
- $\dfrac{(f^4)^2 \times f^5}{f^{11}}$

iii. **Write the following in the form ax^b, where a and b are real numbers:**

- $\dfrac{3}{x}$
- $\dfrac{4}{5x}$
- $6\sqrt{x}$
- $\dfrac{5}{x^3}$
- $8\sqrt{x^5}$

- $\dfrac{\sqrt{x}}{3}$
- $\dfrac{1}{5\sqrt{x}}$
- $\dfrac{6}{x^{-7}}$
- $\dfrac{4}{5\sqrt[3]{x}}$

iv. **Solve the following equations to find x :**

- $x^{1/3} = 2$
- $x^{2/5} = 9$
- $\dfrac{1}{\sqrt{x}} = 4$
- $x^{-2/3} = \dfrac{1}{100}$
- $\sqrt[3]{2x} = 2$
- $5^{6x-1} = 25$