

## Laws of Indices : 2

1) Expand and simplify where appropriate

a)  $(\sqrt{x} + \sqrt[3]{x})(\sqrt{x} - \sqrt[3]{x})$

b)  $(\sqrt[3]{x} - \sqrt[4]{x})(\sqrt[4]{x} + \sqrt[3]{x})$

c)  $(\sqrt{x} - \frac{1}{x^2})(\frac{1}{x^2} + \sqrt{x})$

2) Solve

a)  $8^{3x-1} = 16^x$

b)  $9^{5-2x} = 27^{3x+1}$

c)  $\left(\frac{1}{27}\right)^{2x-1} = 3^{4x}$

d)  $4^{3x} = \left(\frac{1}{32}\right)^{3-x}$

e)  $27^{-x} = \left(\frac{1}{81}\right)^{4x+1}$

f)  $100^{5x} = \left(\frac{1}{1000}\right)^{6-3x}$