Exercise 1.4-1 (Negative and Fractional Indices - Year 1 Pure Maths)

1 (a) Without using a calculator evaluate, $8^{\frac{1}{3}} + 81^{\frac{1}{4}}$. *(2 Marks)*

(b) Find the values of y which satisfy the equation: $(8^y)^y \times \frac{1}{32^y} = 4$. *(5 Marks)*

Link to Solutions: https://youtu.be/h5Uz-wiSO5w

2 (a) Express $3^{2y} - 3^{y+1} - 3^{y} + 3 = 0$ in terms of w, where $w = 3^{y}$. *(3 Marks)*

(b) Hence solve the equation $3^{2y} - 3^{y+1} - 3^{y} + 3 = 0$ *(4 Marks)*

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(a) Simplify $\dfrac{\left(x^{\frac{3}{2}}+x^{\frac{1}{2}}\right)\left(x^{\frac{1}{2}}-x^{-\frac{1}{2}}\right)}{\left(x^{\frac{3}{2}}-x^{\frac{1}{2}}\right)^{2}}$ *(5 Marks)*

(b) Simplify $\dfrac{(4\times 2^{n+1}-2^{n+2})}{(2^{n+1}-2^{n})}$ *(3 Marks)*

Link to Solutions: https://youtu.be/h5Uz-wiSO5w