

**8. Powers of the form:  $x^{\frac{1}{n}}$** 

The exponent  $\frac{1}{n}$  means to take the  $n^{\text{th}}$  root. i.e.  $x^{\frac{1}{n}} = \sqrt[n]{x}$

Ex 1.  $x^{\frac{1}{2}}$

Ex. 2  $x^{\frac{1}{3}}$

Ex. 3  $x^{\frac{1}{12}}$

Ex. 4  $81^{\frac{1}{2}}$

Ex. 5  $(-27)^{\frac{1}{3}}$

Ex. 6  $(-64)^{\frac{1}{4}}$

Ex. 7  $(64)^{\frac{1}{3}}$

Ex. 8  $(64)^{\frac{1}{6}}$

**9. Powers of the form:  $x^{\frac{m}{n}}$** 

The exponent  $\frac{m}{n}$  means to take the  $n^{\text{th}}$  root and raise the answer to an exponent  $m$ .

$$\text{i.e. } x^{\frac{m}{n}} = (\sqrt[n]{x})^m = \sqrt[n]{(x^m)}$$

Ex 1.  $x^{\frac{3}{4}}$

Ex. 2  $x^{\frac{2}{3}}$

Ex. 3  $81^{\frac{3}{4}}$

Ex. 4  $(-125)^{\frac{2}{3}}$

**Quiz next class** – no notes!