

Formulas you need to know!  
 $\sqrt[n]{a \times b} = \sqrt[n]{a} \times \sqrt[n]{b}$  - Surds A & B:  $\sqrt{2} \times \sqrt{2} = 2$

### Dividing Algebraic Fractions

1) Flip the second fraction and:

$$a) \frac{6}{x} \div \frac{2}{x^2} = \frac{6}{x} \times \frac{x^2}{2}$$

2) Now, simplify:

$$2) 3 \times x = 3x$$

3) And then you're done!

Remember to do this to make your wrong head a fraction!

### Revision: Rules of Indices

Multiplication: when multiplying indices, we add them together!

$$E.g. 8^3 \times 8^{21} = 8^{24}$$

$$x^a \times x^m = x^{a+m}$$

Division: when dividing, we subtract indices! Zero: simplify  $x^0 = 1$

$$E.g. x^a \div x^m = x^{a-m}$$

$$2^{10} \div 2^5 = 2^5$$

Brackets: when in brackets, multiply!

$$E.g. (x^m)^n = x^{mn}$$

$$(8^2)^3 = 8^6$$

Negative Indices:

$$E.g. x^{-m} = \frac{1}{x^m}$$

$$8^{-2} = \frac{1}{8^2} = \frac{1}{64}$$

Fractions with a number that isn't 1:

$$x^{\frac{m}{n}} = (\sqrt[n]{x})^m = \sqrt[n]{x^m}$$

Exponential Functions: If we are asked to find  $x$  in an exponential function, and the bases are the same, get rid of them and solve for  $x$ .

Like this:

$$3^x = 3^{2x+5}$$

1) get rid of the base. They are the same after all!

$$x = 2x+5$$

2) Now just simplify!

$$-x = 5 \Rightarrow x = -5$$

3) Look! The see  
that means  
on our hands  
difference are

4) [Remember:

This is our  
it's sequence

5) Good! Now

6) Now, let's  
sequence! The

7) Remember the  
the we

The unit circle

It is also where our  
fun! we need  
one.