Index rules

Remember an index is also called a power or exponent

$3x^5$ ← index, power or exponenent

cofficient Base or variable

1. Multiplication rule.

In algebra this means times

eg 1. $x^4 \times x^6$ $x.x.x.x \times x.x.x.x.x.x$
$= x^{10}$

eg 2. $-3x^5y7x^7y^3 = -3x7x^5x^7yy^3$

If there is no power written, it is the same as the power of one

$= -21x^{5+7}y^{1+3}$
$= -21x^{12}y^4$

Rule is...

If the bases are the same, we can add the powers.

$x^a \cdot x^b = x^{a+b}$

2. Division rule.

$\frac{\text{anything}}{\text{its self}} = 1$

eg 1: $\frac{p^5}{p^2}$ $\frac{p.p.p.p.p}{p.p}$

$\frac{p^5}{p^2} = p^{5-2}$
$= p^3$

eg 2: $12x^{15} \div 6x^7$

Fraction line means divided.

$= \frac{12}{6} \frac{x^{15}}{x^7}$ or $12 \div 6\, x^{15} \div x^7$

$= 2x^{15-7}$
$= 2x^8$

$= 2x^{15-7}$
$= 2x^8$

Rule is $x^a \div x^b = x^{a-b}$

Key idea of introduction terms, notation from the very beginning

Yr 9 student's notes.