Learning Enhancement Team

University of East Anglia
STUDENT SUPPORT SERVICE

Factsheet: Mathematical Inverses

When rearranging equations it is useful to know about mathematical operations and their inverses, see study guide: *Rearranging Equations*. The following table lists some of the most common examples. Of course there are many more and keeping a list handy with your notes is a good idea.

Operation	Inverse	Example
adding	subtracting	$a+b=c$ $a=c-b$
subtracting	adding	$a-b=c$ $a=c+b$
multiplying	dividing	$ab=c$ $a=\frac{c}{b}$
dividing	multiplying	$\frac{a}{b}=c$ $a=bc$
reciprocal (turn upside down)	reciprocal (turn upside down)	$\frac{a}{b}=\frac{c}{d}$ $\frac{b}{a}=\frac{d}{c}$
$\times -1$	$\times -1$	$-a=b$ $a=-b$
squaring	square rooting	$a^2=b$ $a=\pm\sqrt{b}$
square rooting	squaring	$a=\sqrt{b}$ $a^2=b$
exponential (base e)	natural logarithm	$e^a=b$ $a=\ln b$
natural logarithm	exponential (base e)	$\ln a=b$ $a=e^b$
sine	inverse sine	$\sin a=b$ $a=\sin^{-1}b$
cosine	inverse cosine	$\cos a=b$ $a=\cos^{-1}b$
tangent	inverse tangent	$\tan a=b$ $a=\tan^{-1}b$

Want to know more?

If you have any further questions about this topic you can make an appointment to see a **Learning Enhancement Tutor** in the **Student Support Service**, as well as speaking to your lecturer or adviser.

	Call:	01603 592761
	Ask:	ask.let@uea.ac.uk
	Click:	https://portal.uea.ac.uk/student-support-service/learning-enhancement

There are many other resources to help you with your studies on our website.
For this topic there is a webcast.

Your comments or suggestions about our resources are very welcome.

	Scan the QR-code with a smartphone app for a webcast of this factsheet.	