Learning Enhancement Team

University of East Anglia
STUDENT SUPPORT SERVICE

Worksheet: Inverse Functions and Graphs

This worksheet covers inverse functions and graphs, including how to find an inverse function and its relation with the graph of a function. Please read the study guide: *Inverse Functions and Graphs* before doing these questions. You may also find it helpful to read the study guides: *Sketching a Graph* and *Sketching Straight Lines*.

Inverse Functions and Graphs study guide

Model answers for this sheet

Remember that a **bijection** is a function where each input is paired with one and only one output. You are given a list of functions below. For each function in the list:

- decide whether or not $f(x)$ is a bijection;
- find the inverse function $f^{-1}(x)$ of $f(x)$, if it exists;
- *if* the inverse exists, sketch the graphs of $f(x)$ and $f^{-1}(x)$ on the same axes.

i) $f(x)=8x+8$ ii) $f(x)=x^2+8$ iii) $f(x)=\frac{8x-88}{3}$ iv) $f(x)=\frac{x^3+3}{8}$

v) $f(x)=\frac{8x^2+8x}{8}$ vi) $f(x)=8x^4$ vii) $f(x)=e^x+8$ viii) $f(x)=e^{8x}$

ix) $f(x)=(8x+8)^2$ x) $f(x)=x^8$ xi) $f(x)=\ln(x)-8$ xii) $f(x)=8$

This worksheet is one of a series on mathematics produced by the Learning Enhancement Team with funding from the UEA Alumni Fund. Scan the QR-code with a smartphone app for more resources.

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