**LOGS AND EXPONENTIALS LANGUAGE CARD MATCH**

The activities on this page and the following 7 pages were designed for use in Extension 1 Log, exponentials and inverse functions.

This activity is designed to help students deduce the meanings of some mathematical terms.

Copy onto cardboard and cut out the fourteen (14) rectangles. Students use language clues to match the cards.

<table>
<thead>
<tr>
<th><strong>Exponential Functions</strong></th>
<th>Equations like $y = 2^x$, $y = (0.5)^x$, $y = 4^x$ are called exponential functions. All exponential functions have $x$ as a power.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inverse Functions</strong></td>
<td>The inverse function of $y = x^2$ is $y = \sqrt{x}$ These functions “undo” each other.</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>In equations like $y = x - 4$, $y = x^2 + 3$, $y = 2^x$ and $y = \sin x$, the set of values $y$ can have is called the range.</td>
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</tr>
</tbody>
</table>
**Reflection in the line \( y = x \)**

In this diagram the M is reflected in the Line \( y = x \) to give

![Reflection Diagram](image)

When you fold the graph along the line \( y = x \), the M and the \( \leq \) lie on top of each other.

**Vertical asymptotes**

On the graph of \( y = \frac{1}{x^2 - 4} \). The vertical (dotted) lines at \( x = 2 \) and \( x = -2 \) are vertical asymptotes.

**Horizontal asymptotes**

On the graph of \( y = 4^{-x^2} \) the x-axis is a horizontal asymptote. As the values of \( x \) become very large (or very small) the graph gets very close to the x-axis.