



































Inverting a translation		
Since we know what transformation matrices do, we can write down their inversions directly		
For example:		
$ \begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ tx & ty & tz & 1 \end{pmatrix} $ has inversion $ \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ -tx & -ty & -tz \end{pmatrix} $	$\begin{pmatrix} 0\\0\\0\\1 \end{pmatrix}$	
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Inverting scaling	
$ \begin{pmatrix} sx & 0 & 0 & 0 \\ 0 & sy & 0 & 0 \\ 0 & 0 & sz & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix} $ has inversion $ \begin{pmatrix} 1/sx \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix} $	$ \begin{array}{cccc} 0 & 0 & 0 \\ 1/sy & 0 & 0 \\ 0 & 1/sz & 0 \\ 0 & 0 & 1 \end{array} $
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## Solution (a) - Transformation Matrix

The transformation is made up of a translation followed by a rotation, so:































