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| **Fill in the Blanks** | **3D Linear Transformations** |

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| **Matrix** | **Description of Transformation** | **Object Point A** | **Matrix Calculation** | **Image Point A’** |
| $$\left(\begin{matrix}0&0&1\\0&1&0\\-1&0&0\end{matrix}\right)$$ | Rotation of $90°$ anti-clockwise about the $y$-axis | $$(5, -2, 3)$$ |  |  |
| $$\left(\begin{matrix}-1&0&0\\0&1&0\\0&0&1\end{matrix}\right)$$ |  | $$(4, 0, 1)$$ | $$\left(\begin{matrix}-1&0&0\\0&1&0\\0&0&1\end{matrix}\right)\left(\begin{matrix}4\\0\\1\end{matrix}\right)=\left(\begin{matrix}-4\\0\\1\end{matrix}\right)$$ |  |
|  | Reflection in the plane $z=0$ | $$(-2, 4, -1)$$ |  |  |
|  | Rotation of $90°$ anti-clockwise about the $z$-axis | $$(2, -6, 0)$$ |  |  |
| $$\left(\begin{matrix}1&0&0\\0&0&-1\\0&1&0\end{matrix}\right)$$ |  | $$(-3, -1, 5)$$ |  |  |
| $$\left(\begin{matrix}1&0&0\\0&-1&0\\0&0&1\end{matrix}\right)$$ |  | $$(a, 3a, -a)$$ |  |  |
|  | Rotation of $270°$ anti-clockwise about the $y$-axis | $$(5, -3, 2)$$ |  |  |