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| **Topic/Skill**  | **Definition/Tips****Topic: Vectors**  | **Example** |
| 1. Translation | **Translate** means to **move a shape**. The shape does not change **size** or **orientation**. | Image result for translation maths |
| 2. Vector Notation | A vector can be written in 3 ways:**a** or $\vec{AB}$ or $\left(\begin{matrix}1\\3\end{matrix}\right)$ |  |
| 3. Column Vector | In a column vector, the **top** number moves **left (-) or right (+)** and the **bottom** number moves **up (+) or down (-)** | $\left(\begin{matrix}2\\3\end{matrix}\right)$ means ‘2 right, 3 up’$\left(\begin{matrix}-1\\-5\end{matrix}\right)$ means ‘1 left, 5 down’ |
| 4. Vector | A **vector** is a quantity represented by an arrow with both **direction** and **magnitude**.$$\vec{AB}=-\vec{BA}$$ |  |
| 5. Magnitude | Magnitude is defined as the **length** of a vector. |  |
| 6. Equal Vectors | If two vectors have the **same magnitude and direction**, they are **equal**. | image: two parallel lines, both are diagonal with arrows marking the an upward direction |
| 7. Parallel Vectors | **Parallel** vectors are **multiples** of each other. | 2**a**+**b** and 4**a**+2**b** are parallel as they are multiple of each other.Image result for parallel vectors |
| 8. Collinear Vectors | **Collinear** vectors are vectors that are on the **same line**.To show that two vectors are **collinear**, show that one vector is a **multiple** of the other (parallel) **AND** that both vectors **share a point**. | Image result for collinear vector maths |
| 9. Resultant Vector | The **resultant** vector is the vector that results from **adding** two or more vectors together.The resultant can also be shown by **lining up** the **head** of one vector with the **tail** of the other. | if **a** = $\left(\genfrac{}{}{0pt}{}{4}{4}\right)$ and **b** = $\left(\genfrac{}{}{0pt}{}{2}{-2}\right)$then **a** + **b** = $\left(\genfrac{}{}{0pt}{}{4}{4}\right)$ + $\left(\genfrac{}{}{0pt}{}{2}{-2}\right)$ = $\left(\genfrac{}{}{0pt}{}{6}{2}\right)$ |
| 10. Scalar of a Vector | A **scalar** is the **number** we **multiply** a vector by. | Example:3a + 2b = = 3$\left(\genfrac{}{}{0pt}{}{2}{1}\right)$ + 2$\left(\genfrac{}{}{0pt}{}{4}{-1}\right)$ = $\left(\genfrac{}{}{0pt}{}{6}{3}\right)$ + $\left(\genfrac{}{}{0pt}{}{8}{-2}\right)$= $\left(\genfrac{}{}{0pt}{}{14}{1}\right)$ |
| 11. Vector Geometry |  |  |