**Column Vectors GREEN**

1. Calculate the following:

 a) $\left[\begin{matrix}0\\3\end{matrix}\right]+ \left[\begin{matrix}6\\4\end{matrix}\right]$ b) $\left[\begin{matrix}-1\\3\end{matrix}\right]+ \left[\begin{matrix}-2\\4\end{matrix}\right]$ c) $\left[\begin{matrix}9\\-5\end{matrix}\right]+ \left[\begin{matrix}-4\\4\end{matrix}\right]$

2. Calculate the following:

 a) $\left[\begin{matrix}7\\3\end{matrix}\right]- \left[\begin{matrix}3\\1\end{matrix}\right]$ b) $\left[\begin{matrix}-4\\3\end{matrix}\right]- \left[\begin{matrix}-6\\4\end{matrix}\right]$ c) $\left[\begin{matrix}5\\-3\end{matrix}\right]- \left[\begin{matrix}-2\\4\end{matrix}\right]$

3. Calculate the following:

 a) $4\left[\begin{matrix}5\\2\end{matrix}\right]$ b) $-3\left[\begin{matrix}4\\-1\end{matrix}\right]$ c) $0\left[\begin{matrix}3\\-6\end{matrix}\right]$

4. Are the following pairs of vectors parallel?

 a) $\left[\begin{matrix}10\\1\end{matrix}\right]$ and $\left[\begin{matrix}-30\\-3\end{matrix}\right]$ b) $\left[\begin{matrix}32\\-16\end{matrix}\right]$ and $\left[\begin{matrix}8\\4\end{matrix}\right]$ c) $\left[\begin{matrix}8\\-6\end{matrix}\right]$ and $\left[\begin{matrix}4\\-3\end{matrix}\right]$

5. Calculate the magnitude of the following vectors:

 a) $\left[\begin{matrix}6\\3\end{matrix}\right]$ b) $\left[\begin{matrix}4\\-7\end{matrix}\right]$ c) $\left[\begin{matrix}-5\\2\end{matrix}\right]$

**Column Vectors AMBER**

$$\left[\begin{matrix}a\\b\end{matrix}\right]+\left[\begin{matrix}c\\d\end{matrix}\right]=\left[\begin{matrix}a+c\\b+d\end{matrix}\right]$$

1. Calculate the following:

 a) $\left[\begin{matrix}0\\3\end{matrix}\right]+ \left[\begin{matrix}6\\4\end{matrix}\right]$ b) $\left[\begin{matrix}-1\\3\end{matrix}\right]+ \left[\begin{matrix}-2\\4\end{matrix}\right]$ c) $\left[\begin{matrix}9\\-5\end{matrix}\right]+ \left[\begin{matrix}-4\\4\end{matrix}\right]$

$$\left[\begin{matrix}a\\b\end{matrix}\right]-\left[\begin{matrix}c\\d\end{matrix}\right]=\left[\begin{matrix}a-c\\b-d\end{matrix}\right]$$

2. Calculate the following:

 a) $\left[\begin{matrix}7\\3\end{matrix}\right]- \left[\begin{matrix}3\\1\end{matrix}\right]$ b) $\left[\begin{matrix}-4\\3\end{matrix}\right]- \left[\begin{matrix}-6\\4\end{matrix}\right]$ c) $\left[\begin{matrix}5\\-3\end{matrix}\right]- \left[\begin{matrix}-2\\4\end{matrix}\right]$



3. Calculate the following:

 a) $4\left[\begin{matrix}5\\2\end{matrix}\right]$ b) $-3\left[\begin{matrix}4\\-1\end{matrix}\right]$ c) $0\left[\begin{matrix}3\\-6\end{matrix}\right]$

Two vectors are parallel if one is a scalar multiple of the other

4. Are the following pairs of vectors parallel?

 a) $\left[\begin{matrix}10\\1\end{matrix}\right]$ and $\left[\begin{matrix}-30\\-3\end{matrix}\right]$ b) $\left[\begin{matrix}32\\-16\end{matrix}\right]$ and $\left[\begin{matrix}8\\4\end{matrix}\right]$ c) $\left[\begin{matrix}8\\-6\end{matrix}\right]$ and $\left[\begin{matrix}4\\-3\end{matrix}\right]$

Pythagoras’ Theorem:

a² + b² = c²

5. Calculate the magnitude of the following vectors:

 a) $\left[\begin{matrix}6\\3\end{matrix}\right]$ b) $\left[\begin{matrix}4\\-7\end{matrix}\right]$ c) $\left[\begin{matrix}-5\\2\end{matrix}\right]$

**Column Vectors RED**

$$\left[\begin{matrix}a\\b\end{matrix}\right]+\left[\begin{matrix}c\\d\end{matrix}\right]=\left[\begin{matrix}a+c\\b+d\end{matrix}\right]$$

1. Calculate the following:

 a) $\left[\begin{matrix}0\\3\end{matrix}\right]+ \left[\begin{matrix}6\\4\end{matrix}\right]$ b) $\left[\begin{matrix}-1\\3\end{matrix}\right]+ \left[\begin{matrix}-2\\4\end{matrix}\right]$ c) $\left[\begin{matrix}9\\-5\end{matrix}\right]+ \left[\begin{matrix}-4\\4\end{matrix}\right]$

 $\left[\begin{matrix}0+6\\3+4\end{matrix}\right]=$

$$\left[\begin{matrix}a\\b\end{matrix}\right]-\left[\begin{matrix}c\\d\end{matrix}\right]=\left[\begin{matrix}a-c\\b-d\end{matrix}\right]$$

2. Calculate the following:

 a) $\left[\begin{matrix}7\\3\end{matrix}\right]- \left[\begin{matrix}3\\1\end{matrix}\right]$ b) $\left[\begin{matrix}-4\\3\end{matrix}\right]- \left[\begin{matrix}-6\\4\end{matrix}\right]$ c) $\left[\begin{matrix}5\\-3\end{matrix}\right]- \left[\begin{matrix}-2\\4\end{matrix}\right]$

 $\left[\begin{matrix}7-3\\3-1\end{matrix}\right]=$

3. Calculate the following:

 a) $4\left[\begin{matrix}5\\2\end{matrix}\right]$ b) $-3\left[\begin{matrix}4\\-1\end{matrix}\right]$ c) $0\left[\begin{matrix}3\\-6\end{matrix}\right]$

 $\left[\begin{matrix}4 x 5\\4 x 2\end{matrix}\right]=$

Two vectors are parallel if one is a scalar multiple of the other

4. Are the following pairs of vectors parallel?

 a) $\left[\begin{matrix}10\\1\end{matrix}\right]$ and $\left[\begin{matrix}-30\\-3\end{matrix}\right]$ b) $\left[\begin{matrix}32\\-16\end{matrix}\right]$ and $\left[\begin{matrix}8\\4\end{matrix}\right]$ c) $\left[\begin{matrix}8\\-6\end{matrix}\right]$ and $\left[\begin{matrix}4\\-3\end{matrix}\right]$

Pythagoras’ Theorem:

a² + b² = c²

5. Calculate the magnitude of the following vectors:

 a) $\left[\begin{matrix}6\\3\end{matrix}\right]$ b) $\left[\begin{matrix}4\\-7\end{matrix}\right]$ c) $\left[\begin{matrix}-5\\2\end{matrix}\right]$

 $\sqrt{6^{2}+3^{2}}=$