# Multiple choice questions - Vectors

Year: Year 11 · 10

**Question 1** The vector from A to B is written

- ◯ **A.** $\overrightarrow{AB}$
- ◯ **B.** $\overrightarrow{BA}$
- ◯ **C.** $\mathbf{AB}$ only
- ◯ **D.** |AB|

**Question 2** $\begin{pmatrix}2\\3\end{pmatrix}+\begin{pmatrix}4\\-1\end{pmatrix}=$

- ◯ **A.** $\begin{pmatrix}6\\2\end{pmatrix}$
- ◯ **B.** $\begin{pmatrix}6\\4\end{pmatrix}$
- ◯ **C.** $\begin{pmatrix}-2\\4\end{pmatrix}$
- ◯ **D.** $\begin{pmatrix}8\\-3\end{pmatrix}$

**Question 3** $3\begin{pmatrix}2\\-1\end{pmatrix}=$

- ◯ **A.** $\begin{pmatrix}5\\2\end{pmatrix}$
- ◯ **B.** $\begin{pmatrix}6\\-3\end{pmatrix}$
- ◯ **C.** $\begin{pmatrix}6\\-1\end{pmatrix}$
- ◯ **D.** $\begin{pmatrix}2\\-3\end{pmatrix}$

**Question 4** The magnitude of $\begin{pmatrix}6\\8\end{pmatrix}$ is

- ◯ **A.** 14
- ◯ **B.** 10
- ◯ **C.** 7
- ◯ **D.** 100

**Question 5**

- ◯ **A.** $\mathbf{a}-\mathbf{b}$
- ◯ **B.** $\mathbf{b}-\mathbf{a}$
- ◯ **C.** $\mathbf{a}+\mathbf{b}$
- ◯ **D.** $-\mathbf{a}-\mathbf{b}$

**Question 6** Two vectors are parallel when

- ◯ **A.** they have equal magnitude
- ◯ **B.** one is a scalar multiple of the other
- ◯ **C.** they add to zero
- ◯ **D.** they are perpendicular

**Question 7** $A(2,1)$, $B(6,4)$.

- ◯ **A.** $\begin{pmatrix}8\\5\end{pmatrix}$
- ◯ **B.** $\begin{pmatrix}4\\3\end{pmatrix}$
- ◯ **C.** $\begin{pmatrix}-4\\-3\end{pmatrix}$
- ◯ **D.** $\begin{pmatrix}3\\4\end{pmatrix}$

**Question 8** equals

- ◯ **A.**
- ◯ **B.**
- ◯ **C.**
- ◯ **D.** $0$

**Question 9** (Higher) To prove three points are collinear you show

- ◯ **A.** the vectors have equal length
- ◯ **B.** two of the vectors are parallel and share a point
- ◯ **C.** they form a triangle
- ◯ **D.** the vectors add to zero

**Question 10** (Higher) M is the midpoint of AB, with OA = a and OB = b.

- ◯ **A.** $\mathbf{a}+\mathbf{b}$
- ◯ **B.** $\frac{1}{2}(\mathbf{b}-\mathbf{a})$
- ◯ **C.** $\frac{1}{2}(\mathbf{a}+\mathbf{b})$
- ◯ **D.** $\mathbf{b}-\mathbf{a}$

# Answer grid - Vectors

Year: Year 11

| Question | Answer | Explanation |
|---|---|---|
| 1 | **B** | Start then end. |
| 2 | **A** | Add each row. |
| 3 | **B** | Multiply both. |
| 4 | **B** | sqrt(36+64). |
| 5 | **B** | End minus start (with OA=a, OB=b). |
| 6 | **B** | Scalar multiple. |
| 7 | **B** | End minus start. |
| 8 | **B** | Opposite direction. |
| 9 | **B** | Multiple and common point. |
| 10 | **C** | Average of the position vectors. |