www.m4ths.com - A Level Maths
3 Exam Questions
Yr 1 – Vectors

(1)Two forces are given as: $F_1=(pi+qj)N$ and $F_2=(3i+6j)N$.
(a) Find the angle that F_2 makes with the vector i.
(b) Given that the resultant force $R = F_1 + F_2$ has magnitude 10N and acts horizontally, find the values of $p$and q.
(c) The force $F_3=(ai+bj)N$ and F_1 act on a particle. Given that the particle remains in equilibrium, state the values of a and b.
(2) Two parallel vectors and given as $a = \binom{5}{7}$ and $b = \binom{p}{-14}$.
(a) Find the value of p.
(b) Find|a|.
(c) Find a unit vector in the direction of a.
(d) Given that a particle has velocity $\binom{5}{7} ms^{-1}$, state the speed of the particle.
(3) Relative to a fixed origin O, A and B have position vectors $\overrightarrow{OA} = -4i + 2j$ and $\overrightarrow{OB} = 7i + 6j$
(a) Find the vector $\overrightarrow{AB}$
(b) Find the distance between A and B.
(c) Find the bearing of B from A.
A boat starts at a port before travelling to a point with position vector $(-4i + 2j)km$ relative to the port. The boat then travels to a point with position vector $(7i + 6j)km$ relative to the port.
The boat finally returns to the port. Find the total distance the boat travels.

www.m4ths.com - A Level Maths
3 Exam Questions
Yr 1 – Vectors

(1)Two forces are given as: $F_1=(pi+qj)N$ and $F_2=(3i+6j)N$.
(a) Find the angle that F_2 makes with the vector i.
(b) Given that the resultant force $R = F_1 + F_2$ has magnitude 10N and acts horizontally, find the values of $p$and q.
(c) The force $F_3=(ai+bj)N$ and F_1 act on a particle. Given that the particle remains in equilibrium, state the values of a and b.
(2) Two parallel vectors and given as $a = \binom{5}{7}$ and $b = \binom{p}{-14}$.
(a) Find the value of p.
(b) Find|a|.
(c) Find a unit vector in the direction of a.
(d) Given that a particle has velocity $\binom{5}{7} ms^{-1}$, state the speed of the particle.
(3) Relative to a fixed origin O, A and B have position vectors $\overrightarrow{OA} = -4i + 2j$ and $\overrightarrow{OB} = 7i + 6j$
(a) Find the vector $\overrightarrow{AB}$
(b) Find the distance between A and B.
(c) Find the bearing of B from A.
A boat starts at a port before travelling to a point with position vector $(-4i + 2j)km$ relative to the port. The boat then travels to a point with position vector $(7i + 6j)km$ relative to the port.
The boat finally returns to the port. Find the total distance the boat travels.

www.m4ths.com - A Level Maths
3 Exam Questions
Yr 1 – Vectors

(1)Two forces are given as: $F_1=(pi+qj)N$ and $F_2=(3i+6j)N$.
(a) Find the angle that F_2 makes with the vector i.
(b) Given that the resultant force $R = F_1 + F_2$ has magnitude 10N and acts horizontally, find the values of $p$and q.
(c) The force $F_3=(ai+bj)N$ and F_1 act on a particle. Given that the particle remains in equilibrium, state the values of a and b.
(2) Two parallel vectors and given as $a = \binom{5}{7}$ and $b = \binom{p}{-14}$.
(a) Find the value of p.
(b) Find|a|.
(c) Find a unit vector in the direction of a.
(d) Given that a particle has velocity $\binom{5}{7} ms^{-1}$, state the speed of the particle.
(3) Relative to a fixed origin O, A and B have position vectors $\overrightarrow{OA} = -4i + 2j$ and $\overrightarrow{OB} = 7i + 6j$
(a) Find the vector $\overrightarrow{AB}$
(b) Find the distance between A and B.
(c) Find the bearing of B from A.
A boat starts at a port before travelling to a point with position vector $(-4i + 2j)km$ relative to the port. The boat then travels to a point with position vector $(7i + 6j)km$ relative to the port.
The boat finally returns to the port. Find the total distance the boat travels.