Scalar Product

The scalar/dot product of two vectors is the sum of the products of the components. The result is a **scalar**, hence the name.

Examples

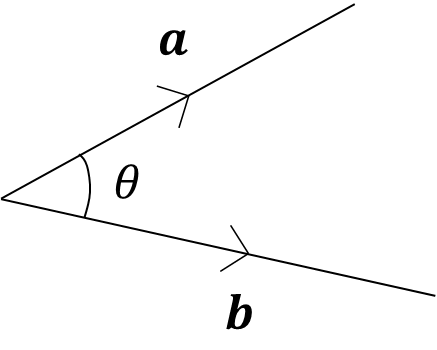
2.

3.

Remarkably, if the two vectors are unit vectors, the dot product gives us the cosine of the angle between them.

Angle between vectors:

or



Note the direction if the vectors and the corresponding angle.

Example

Find the acute angle between the vectors and .

Example

Find the angle between the vectors and .

Example

If and , determine the angle

Hence find the area of triangle .

Perpendicular Vectors

Given that

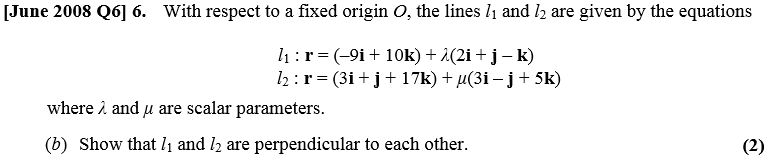
It follows that if two vectors are perpendicular then ………………………………………

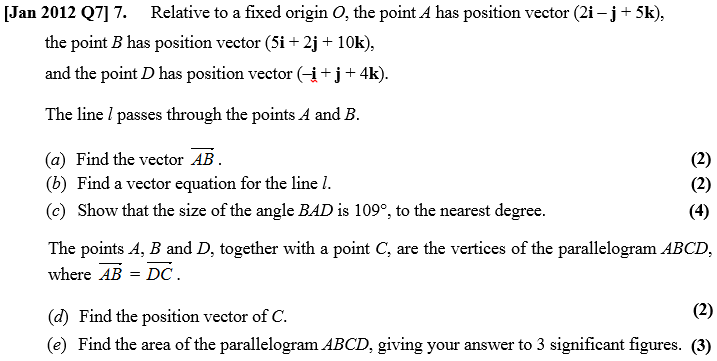
We can use this to prove that two vectors are perpendicular.

Example

1. Show that and are perpendicular.
2. Given that and , find a vector which is perpendicular to both and .

Test Your Understanding





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