Questions: The scalar product

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Summary

A selection of questions for the study guide on the scalar product

*Before attempting these questions, it is highly recommended that you read* [*Guide: The scalar product*](../studyguides/scalarproduct.qmd)*, as well as* [*Guide: Introduction to quadratic equations*](../studyguides/introtoquadratics.qmd)*.*

## Q1

Find the scalar product of and .

1.1. and

1.2. and

1.3. and

1.4. and

1.5. and

1.6. and

1.7. and

1.8. and .

What can you say about the result of 1.8.? Can you deduce similar conclusions for the scalar product of different combinations of the vectors , , ?

## Q2

Using the geometric definition of the scalar products, find the smallest angle in between and in degrees. If your answer is not a whole number, give your answer to an accuracy of one decimal place.

2.1. and

2.2. and

2.3. and

2.4. and

2.5. and

2.6. and

2.7. and

2.8. and

## Q3

Find the value(s) of for which and are perpendicular.

3.1. and

3.2. and

3.3. and

3.4. and

3.5. and

3.6. and

3.7. and

3.8. and

[After attempting the questions above, please click this link to find the answers.](../answers/as-scalarproduct.qmd)

## Version history and licensing

v1.0: initial version created 08/23 by Ritwik Anand as part of a University of St Andrews STEP project.

* v1.1: edited 05/24 by tdhc.

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