

# Questions: Trigonometry (radians)

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## Summary

A selection of questions on trigonometry, where angles are measured in degrees.

Before attempting these questions, it is recommended that you read [Guide: Trigonometry \(radians\)](#)

## Q1

You are given the triangle below.



Figure 1: Q1. Triangle

Find  $\cos$ ,  $\sin$  and  $\tan$  of both  $a$  and  $b$ .

## Q2

Using the triangle below, solve the following equations.



Figure 2: Q2. Triangle

- 2.1. If angle  $a$  is  $\pi/6$  and  $B = 6$ , what length is  $C$ ?
- 2.2. If angle  $b$  is  $\pi/4$  and  $C = 2\sqrt{2}$ , what length is  $A$ ?
- 2.3. If angle  $a$  is  $\pi/12$  and  $C = 7$ , what length is  $A$ ?
- 2.4. If angle  $b$  is  $\pi/6$  and  $C = 2\sqrt{2}$ , what length is  $A$ ?
- 2.5. If angle  $a$  is  $\pi/4$  and  $B = 8$ , what length is  $A$ ?
- 2.6. If angle  $a$  is  $\pi/3$  and  $A = 8$ , what length is  $B$ ?

### Q3

Without using a calculator if possible, give the values of the following expressions.

- 3.1.  $\cos(\pi/6)$
- 3.2.  $\tan(\pi/6)$
- 3.3.  $\csc(\pi/4)$
- 3.4.  $\cot(\pi/6) - \sin(\pi/3)$
- 3.5.  $\sin(\pi/2) + \cos(\pi)$
- 3.6.  $\tan(\pi/6) - \cot(\pi/6)$
- 3.7.  $\cos(0) \sin(\pi/2)$
- 3.8.  $\cos(\pi/6) \sec(\pi/6) - \sin(\pi/4) \csc(\pi/4)$
- 3.9.  $\cot(\pi/2)$

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After attempting the questions above, please click [this link](#) to find the answers.

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## **Version history and licensing**

v1.0: initial version created 08/23 by Dzhemma Ruseva, Ellie Gurini, Ciara Cormican as part of a University of St Andrews STEP project.

- v1.1: edited 05/24 by tdhc, and split into versions for both degrees and radians.

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