

# Answers: Trigonometry (radians)

Dzhemma Ruseva, Ellie Gurini, Ciara Cormican

## Summary

Answers to the questions on trigonometry, using radians to measure angles.

These are the answers to [Questions: Trigonometry \(radians\)](#).

**Please attempt the questions before reading these answers!**

## Q1

You are given the triangle below.

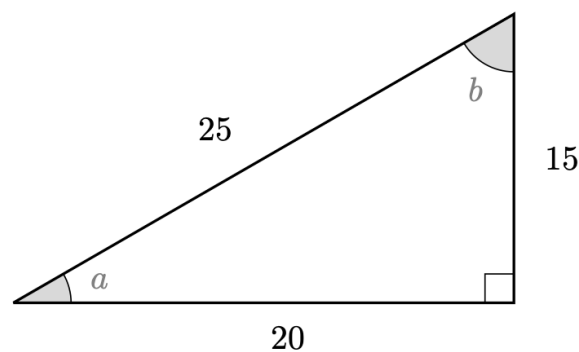


Figure 1: Q1. Triangle

Here,

- $\cos(a) = \frac{4}{5}$
- $\sin(a) = \frac{3}{5}$
- $\tan(a) = \frac{3}{4}$
- $\cos(b) = \frac{3}{5}$
- $\sin(b) = \frac{4}{5}$
- $\tan(b) = \frac{4}{3}$

**Q2**

Using the triangle below, solve the following equations.

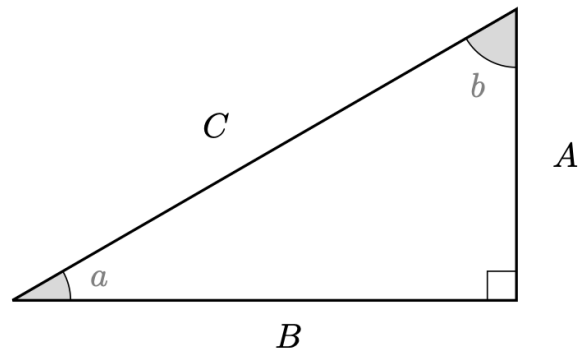


Figure 2: Q2. Triangle

2.1.  $C = 12$

2.2.  $A = 2$

2.3.  $A = 1.812$  (to three decimal places)

2.4.  $A = \sqrt{6}$

2.5.  $A = 8$

2.6.  $B = \frac{8}{\sqrt{3}}$ .

**Q3**

3.1.  $\cos(\pi/6) = \frac{\sqrt{3}}{2}$

3.2.  $\tan(\pi/6) = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

3.3.  $\csc(\pi/4) = 1$

3.4.  $\cot(\pi/6) - \sin(\pi/3) = \sqrt{3} - \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2}$

3.5.  $\sin(\pi/2) + \cos(\pi) = 1 + (-1) = 0$

3.6.  $\tan(\pi/6) - \cot(\pi/6) = \frac{1}{\sqrt{3}} - \sqrt{3}$

3.7.  $\cos(0) \sin(\pi/2) = 1 \cdot 1 = 1$

3.8.  $\cos(\pi/6) \sec(\pi/6) - \sin(\pi/4) \csc(\pi/4) = 1 - 1 = 0$

3.9.  $\cot(\pi/2) = 0$

---

## 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.

This work is licensed under [CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/).