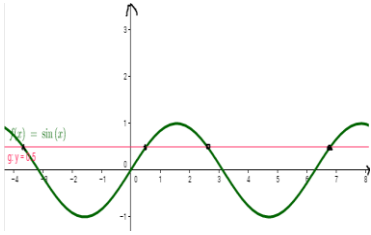


Goals



By the end of this unit, students:

- understand the concepts and techniques in trigonometry, real and complex numbers, and matrices
- apply reasoning skills and solve problems in trigonometry, real and complex numbers, and matrices
- communicate their arguments and strategies when solving problems
- construct proofs of results
- interpret mathematical information and ascertain the reasonableness of their solutions to problems

This week:

Compound angles:

- prove and apply the angle sum, difference and double angle identities.

Theoretical Components

Read through examples and make notes.

Mathspace Lessons:

- Angle Sum and Difference Identities: <https://bit.ly/3xo2g8e>
- Expansions involving Angle sum and difference identities: <https://bit.ly/3pUmG6f>
- Half & Double Angle Identity: <https://bit.ly/35jrk4o>
- Sum and Diff as Products: <https://bit.ly/35iWwRr>

Proof of the Sum formula: <http://goo.gl/YTNgDo>

Proof of Half and Double Angle: <http://goo.gl/pP5IRE>

Watch the following videos:

- <https://goo.gl/ikqoXX>
- <https://goo.gl/obPpeF>
- <https://goo.gl/KnkJZ3>
- <https://goo.gl/7PhXKw>

Practical Components

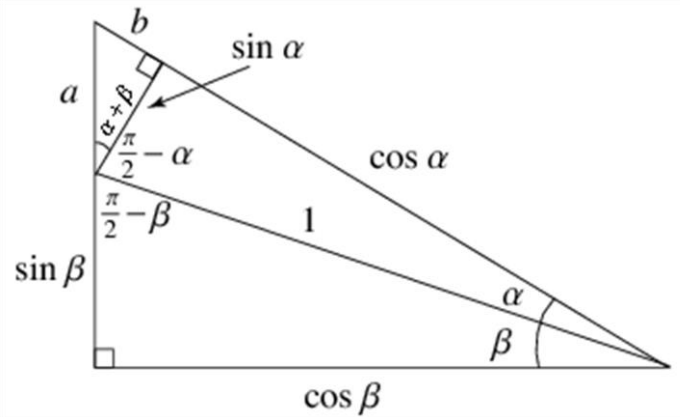
Check Google Drive S2/WK03 folder:

- Attempt at least 6 questions from each of the 4 exercises.

Investigation

See next page!

Does this make any sense?



See <http://goo.gl/MzbcR> for hints!

Q/F/O
Quiz/Forum/Other

Mathspace Quiz: WK03 SM2 Quiz to be completed by 7th Aug.

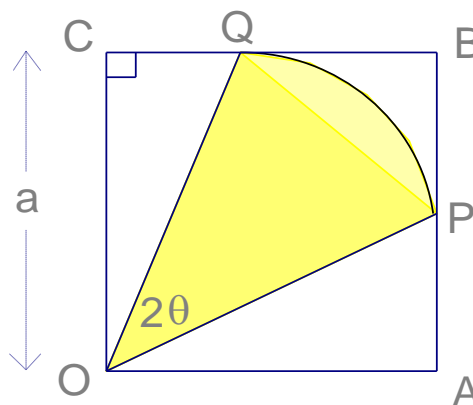
Investigation

OABC is a square of side 'a' units. The shaded region is a sector of a circle, centre O and $\angle QOP = 2\theta$ radians.

If the area of the sector is one half the area of the square, prove

$$\sin 2\theta = 4\theta - 1$$

(Hint: note $\angle AOP = \angle COQ$ and the area of a sector is given by $A = \frac{1}{2}r^2\theta$)



(20 marks – see the rubric)