

# MAS152: Essential Mathematical Skills & Techniques

Elizabeth Winstanley

[mas-engineering@sheffield.ac.uk](mailto:mas-engineering@sheffield.ac.uk)

Monday 30th September 2019, 1pm  
Diamond LT4

# About the course

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- work on exercises from exercise sheets in your own time.

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**Course website**

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# Timetable

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# Assessment

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Past papers for the exam will be made available nearer the time.

# **Video lectures and online tests**

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- Mondays at 9am, due the following Wednesday at 12noon;
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You won't receive any reminders: it's your responsibility to log in twice a week and watch the videos and do the tests!

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# Problem classes

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# Exercises

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# Full-class lectures

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**Text books**



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# Calculators

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**Reading week**

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# Engagement



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- ask questions in the classes;
- work on the exercise sheets at home;
- use the discussion board for extra help.

# Syllabus, Weeks 1–4



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In Week 4 we will move on to *differentiation*.



# Activity

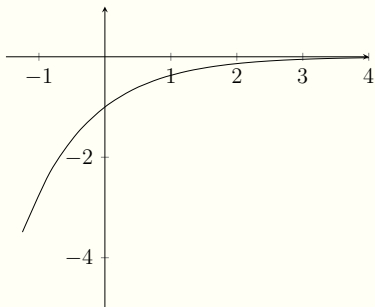
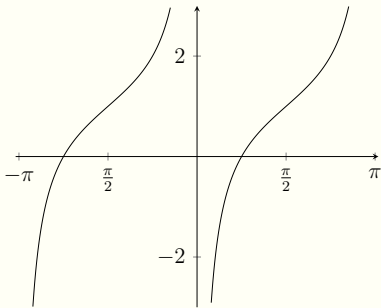
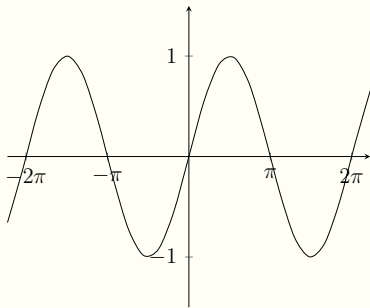
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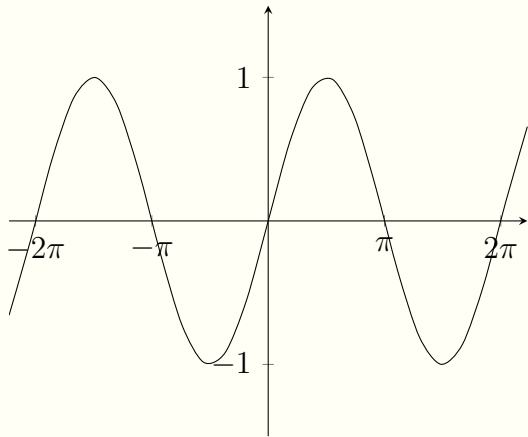
**Activity.** Introduce yourself to the person next to you (or talk in a group of three if easier). On the next slide I will show you graphs of three functions. Your job is to try to identify the functions that have that graph.

Once you have identified the functions, discuss any understanding you have of the terms *domain*, *range*, *odd*, *even*, *periodic*, and *continuous* which appeared in the earlier slides.



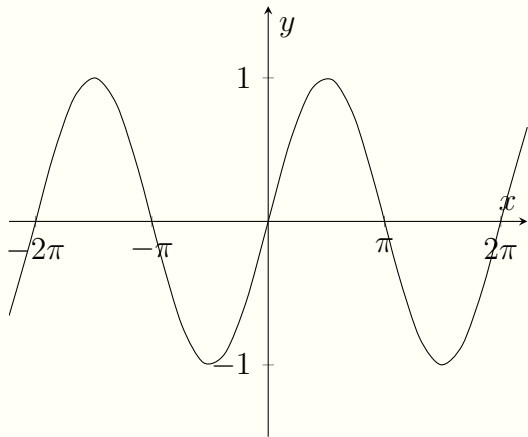
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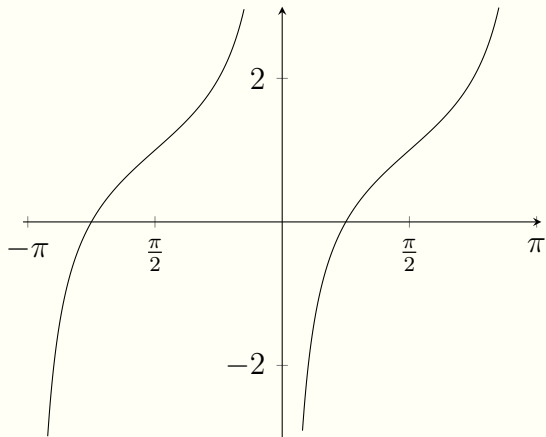
# Answers



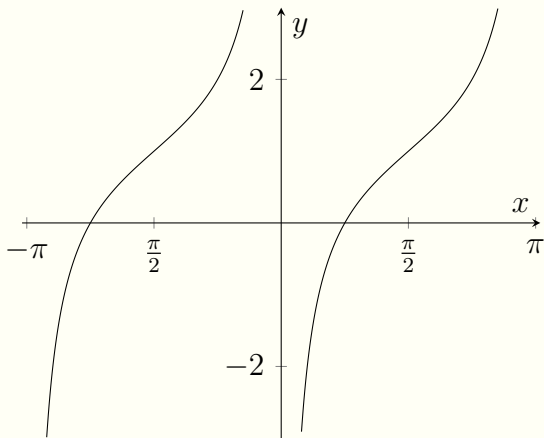


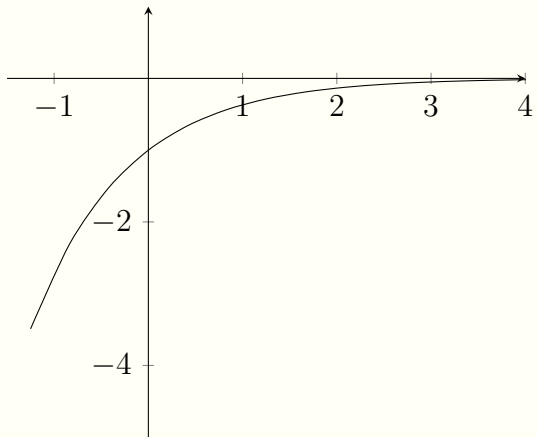
$$y = \sin x$$



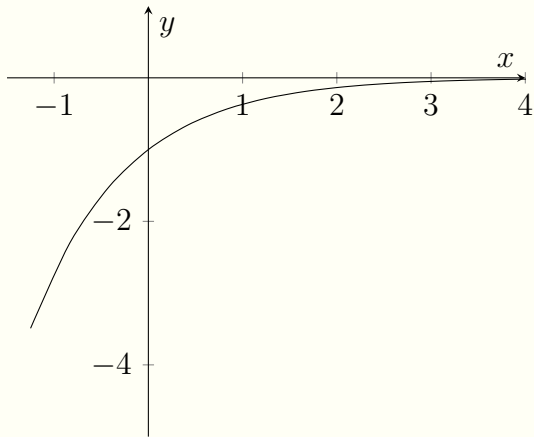


$$y = \tan\left(x - \frac{\pi}{2}\right) + 1$$





$$y = -e^{-x}$$



# Reminders

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I hope you enjoy the first few weeks of the course.