AQA, Edexcel, OCR, MEI

A Level

A Level Mathematics

C2 Curve Sketching

Name:

MME
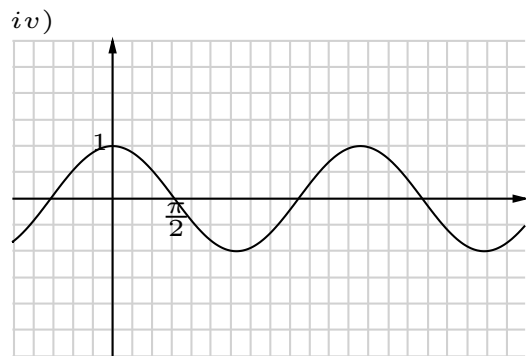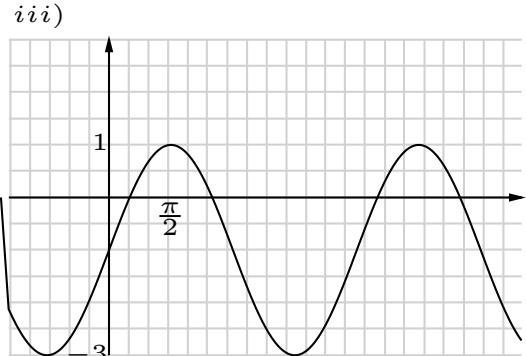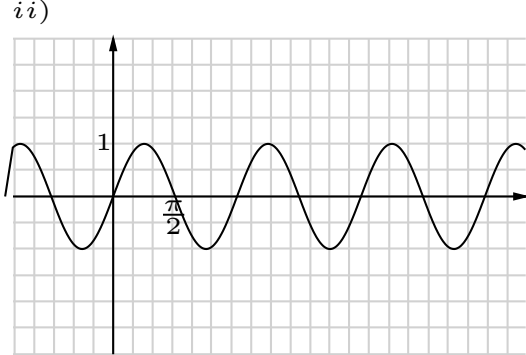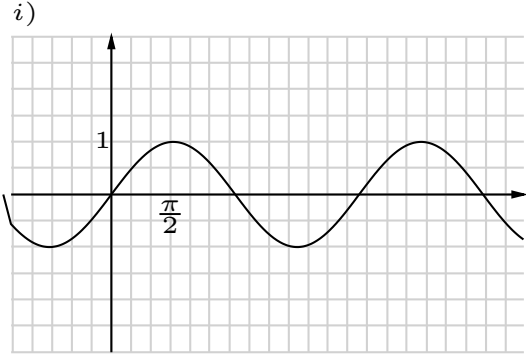Mathsmadeeasy.co.uk

Total Marks: /26

1. Consider the plots of four trigonometric functions below:

i)

ii)

iii)

iv)

Match the following functions to the correct graph number i, ii, iii, iv above.

(a) $y = \sin x$. [2]

(b) $y = 2\sin x - 1$. [2]

(c) $y = \sin\left(x + \frac{\pi}{2}\right)$. [2]

(d) $y = \sin(2x)$. [2]

2. True or false: $\sin\left(x + \frac{\pi}{2}\right) = \cos x$? [1]

3. Consider the curve $y = x^3 - x$.

   (a) Compute $y(0)$. [1]

   (b) Find the *coordinates* of the points where the curve intersects the x axis. [3]

   (c) Find the *coordinates* of the stationary points of the curve and determine their nature. [4]

   (d) Sketch the curve $y = x^3 - x$, clearly indicating any points of intersection with the axes and the location of any stationary points. [3]

   (e) On separate axes, sketch the graphs of $y = x^3 - x + 1$, $y = 2(x^3 - x) - 1$ and $y = (x-1)^3 - (x-1)$. [6]