
# Graphs of Functions

## Maths Past Exam Questions

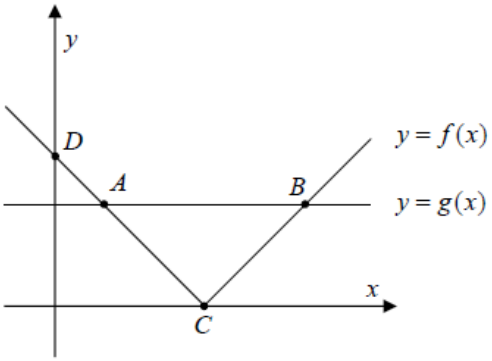
## Higher Level

# 2012

**Project Maths Paper One Sample - Section A – Q4 B**

**(b)** The graphs of the functions $f : x \mapsto |x-3|$ and $g : x \mapsto 2$ are shown in the diagram.

**(i)** Find the co-ordinates of the points $A$, $B$, $C$ and $D$.




$A = (\quad , \quad)$ $B = (\quad , \quad)$

$C = (\quad , \quad)$ $D = (\quad , \quad)$

**(ii)** Hence, or otherwise, solve the inequality $|x-3| < 2$.

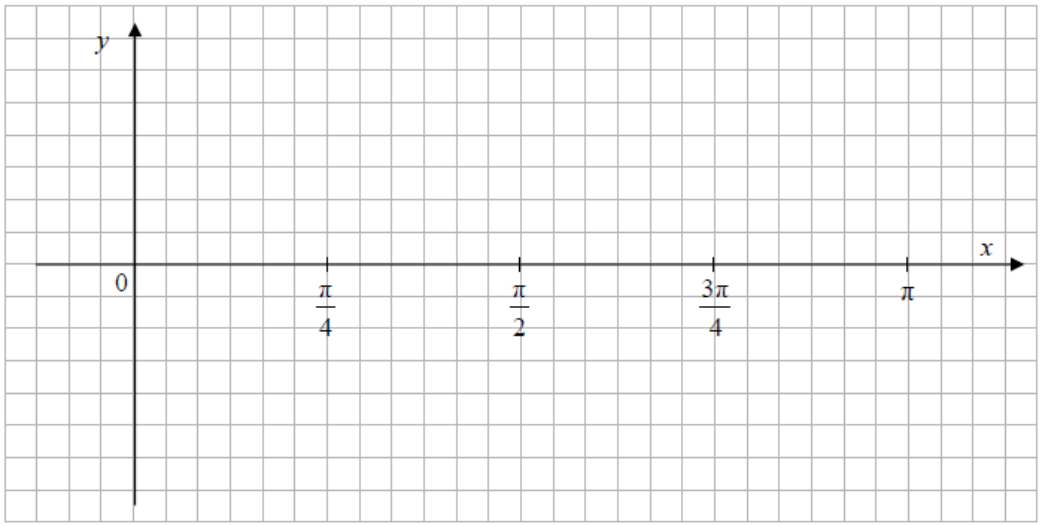
**Project Maths - Paper Two Sample - Section A – Q5**

The function $f : x \mapsto 3\sin(2x)$ is defined for $x \in \mathbb{R}$.

**(a)** Complete the table below

| $x$ | 0 | $\frac{\pi}{4}$ | $\frac{\pi}{2}$ | $\frac{3\pi}{4}$ | $\pi$ |
|---|---|---|---|---|---|
| $2x$ | | | | | |
| $\sin(2x)$ | | | | | |
| $3\sin(2x)$ | | | | | |

**(b)** Draw the graph of $y = f(x)$ in the domain $0 \le x \le \pi$, $x \in \mathbb{R}$.




**(c)** Write down the range and the period of $f$.

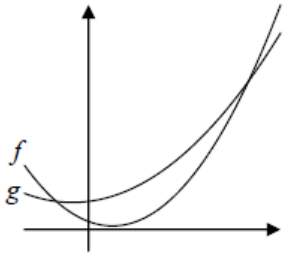
Range = _____ Period = _____

**Paper 1 – Project Maths – Q5**

**Question 5** **(25 marks)**

The functions $f$ and $g$ are defined for $x \in \mathbb{R}$ as

$$f : x \mapsto 2x^2 - 3x + 2 \quad \text{and}$$
$$g : x \mapsto x^2 + x + 7 .$$




**(a)** Find the co-ordinates of the two points where the curves $y = f(x)$ and $y = g(x)$ intersect.

**(b)** Find the area of the region enclosed between the two curves.