Functions
Difficulty: Hard

Question Paper 2

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Algebra and graphs
Sub-Topic	Functions
Paper	Paper 2
Difficulty	Hard
Booklet	Question Paper 2

Time allowed: **32 minutes**

Score: **/25**

Percentage: **/100**

Grade Boundaries:

CIE IGCSE Maths (0580)

A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

CIE IGCSE Maths (0980)

9	8	7	6	5	4	3
>94%	85%	77%	67%	57%	47%	35%

Question 1

$f(x) = (x + 2)^3 - 5$ $\quad g(x) = 2x + 10$ $\quad h(x) = \frac{1}{x}, x \neq 0$

Find

(a) $gf(x)$, [2]

(b) $f^{-1}(x)$, [3]

(c) $gh\left(-\frac{1}{5}\right)$. [2]

Question 2

$f(x) = (x-1)^3$ $g(x) = (x-1)^2$ $h(x) = 3x + 1$

(a) Work out fg(-1). [2]

(b) Find gh(x) in its simplest form. [2]

(c) Find $f^{-1}(x)$. [2]

(a) $f(x) = 1 - 2x$.

(i) Find f(-5). [1]

(ii) $g(x) = 3x - 2$.

Find $gf(x)$. Simplify your answer. [2]

(b) $h(x) = x^2 - 5x - 11$.

Solve $h(x) = 0$. [4]

Show all your working and give your answer correct to 2 decimal places.

$f: x \to 1 - 2x$ and $g: x \to \frac{x}{2}$.

(a) Find $fg(7)$. [2]

(b) (i) Solve $f(x) = g(x)$. [2]

(ii) The graphs of $y = f(x)$ and $y = g(x)$ meet at M.
Find the coordinates of M. [1]