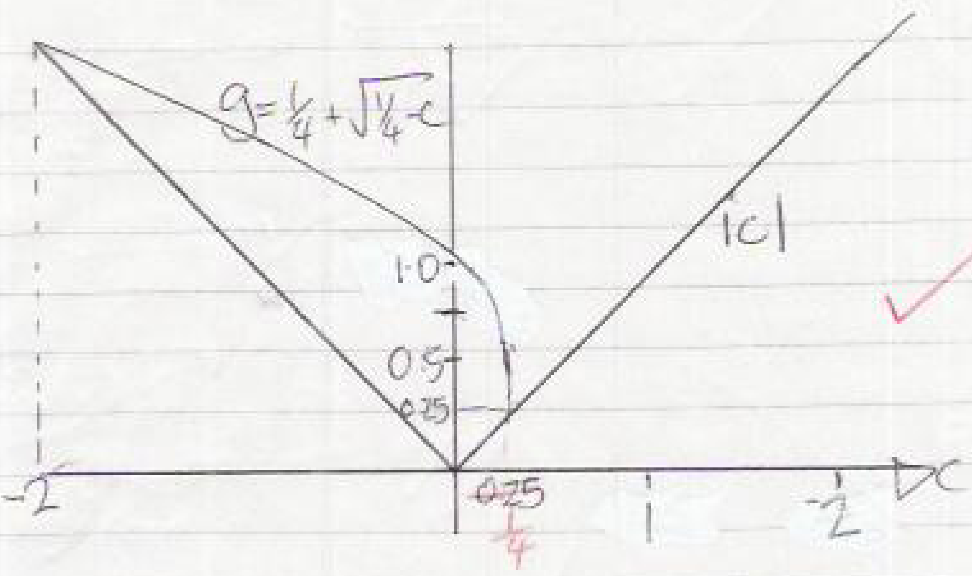
⑥

3) b).



On $[-2, 1/4]$ $g \geq |c|$, and since $f_c(0) = c$

$|f_c(0)| \leq 1/2 + \sqrt{1/4 - c}$

Let $z \in [-1/2 - \sqrt{1/4 - c}, \frac{1}{2} + \sqrt{1/2 - c}]$

Then $z^2 \in [0, 1/2 - c + \sqrt{1/2 - c}]$

and $z^2 + c \in [c, 1/2 + \sqrt{1/2 - c}]$

$|c| \leq 1/2 + \sqrt{1/4 - c}$

$\Rightarrow -1/2 + \sqrt{1/2 - c} \leq c$ for $c \in [-2, 0]$

For $c \in [0, 1/4]$ $|c| \leq 1/4 \leq \frac{1}{2} + \sqrt{1/4 - c}$

$\Rightarrow z^2 + c \in [-1/2 - \sqrt{1/2 - c}, 1/2 + \sqrt{1/2 - c}] = I$

so $f_c(z)$ maps the interval to itself, so $|f_c^k(0)|$ is bounded as $k \to \infty$, (since $f_c(0) = c \in I$)

11/12 and $c \in M$.

c) Since $f^n(z) = f(f^{n-1}(z))$ we can write $z_{n+1} = f(z_n)$

$= 3z_n^2 + 2iz_n + (1-i)/3$

$3z_{n+1} = 9z_n^2 + 6iz_n + (1-i)$