# Section B

## Question 1a.

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 15 | 85 | 0.9 |

$-1,\ -a,\ 2,\ 2a$

This question was answered well.

## Question 1b.i.

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 29 | 61 | 10 | 0.8 |

$-2,\ -\frac{1}{2},\ 0$

Some of the values were often missing.

## Question 1b.ii.

| | 0 | 1 | Average |
|---|---|---|---|
| % | 69 | 31 | 0.3 |

$R \setminus \left\{-2, -\frac{1}{2}, 0, 1\right\}$

This question was not answered well. Some students did not exclude $1$.

## Question 1c.i.

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 5 | 95 | 1.0 |

$g'(x) = 2(x-2)(x+1)(2x-1) = 4x^3 - 6x^2 - 6x + 4$

This question was answered well.

## Question 1c.ii.

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 24 | 76 | 0.8 |

$\left(\frac{1}{2},\frac{81}{16}\right)$ or $(0.5,5.0625)$

Exact answers were required. $(0.5,5.06)$ was sometimes seen.

## Question 1c.iii.

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 29 | 71 | 0.7 |

$\left(-1,\frac{1}{2}\right)\cup(2,\infty)$

This question was answered well. Some students used square brackets instead of round brackets. Others put $\cap$ instead of $\cup$.

## Question 1c.iv.

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 32 | 17 | 51 | 1.2 |

$y_1=3\sqrt{3}x-\frac{3\left(2\sqrt{3}-9\right)}{4}$, $y_2=-3\sqrt{3}x+\frac{3\left(2\sqrt{3}+9\right)}{4}$ or $y_1=3\sqrt{3}x-\frac{3\sqrt{3}}{2}+\frac{27}{4}$,

$y_2=-3\sqrt{3}x+\frac{3\sqrt{3}}{2}+\frac{27}{4}$

or $y_1=\frac{3\left(\sqrt{3}(4x-2)+9\right)}{4}$, $y_2=\frac{-3\left(\sqrt{3}(4x-2)-9\right)}{4}$, $\left(\frac{1}{2},\frac{27}{4}\right)$ or $(0.5,6.75)$

This question was answered reasonably well. A common incorrect answer was $\left(\frac{1}{2},\frac{81}{16}\right)$.

## Question 1d.i.

| Marks | 0 | 1 | Average |
|---|---|---|---|
| % | 63 | 37 | 0.4 |

Translate $\frac{1}{2}$ unit to the right and $\frac{17}{16}=1.0625$ units up.

Some students incorrectly translated to the left and down. Others had an incorrect value for the vertical translation such as $\frac{81}{16}$. Exact answers were required. $1.06$ was sometimes seen.

## Question 1d.ii.

| Marks | 0 | 1 | 2 | Average |
|---|---|---|---|---|
| % | 76 | 19 | 5 | 0.3 |

Dilate by a factor of $\frac{3}{\sqrt{10}} = \frac{3\sqrt{10}}{10}$ from the vertical axis, translate $\frac{1}{2}$ unit to the right, translate $\frac{9}{4}$ units up

OR translate $\frac{\sqrt{10}}{6}$ units to the right, dilate by a factor of $\frac{3}{\sqrt{10}}$ from the vertical axis, translate $\frac{9}{4}$ units up.

This question was not done well. The vertical translation could be completed at any stage in the sequence. The other transformations had to be in the correct order.