|  |  |
| --- | --- |
| **Algebra Revision**  | **5** |
| **(a)** | **(b)** | **(c)** | **(d)** |
| (i) Plot the graph of $y=x^{3}-3x+3$where $-2\leq x\leq 2$(ii) By plotting a straight line on the graph, find approximate solutions to the equation$$x^{3}-3x+3=0.5x+2$$ | Solve $3x^{2}-5x-1=0$giving your answers to 3 significant figures | Find the equation of the line that is perpendicular to $y=-3x+1$ and passes through the point $(4, -2)$ | $y$ is directly proportional to the cube of $x$. When $x=5$, $y=25$. (i) Find an equation for $y$ in terms of $x$.(ii) Find the value of $x$ when $y=12.8$ |
| **(e)** | **(g)** | **(h)** |
| Find the gradient of the line segment joining $(1, -5)$ and $(-1, 2)$ | Write $2x^{2}-8x-5$ in the form $a(x-b)^{2}+c$  | Use the graph to find an estimate of the gradient at the point where $x=5$ |
| **(f)** |
| Simplify $\frac{5}{2x}+\frac{x+1}{x}-\frac{3}{5x}$ |