2017 P2 Q4

4. (a) Express $3x^2+24x+50$ in the form $a(x+b)^2+c$.

(b) Given that $f(x)=x^3+12x^2+50x-11$, find $f'(x)$.

(c) Hence, or otherwise, explain why the curve with equation $y=f(x)$ is strictly increasing for all values of x.

Answers

(a) $3(x+4)^2+2$

(b) $3x^2+24x+50$

(c) $f'(x)=3(x+4)^2+2$ and

$(x+4)^2 \geq 0 \ \forall x$

$\therefore 3(x+4)^2+2>0 \Rightarrow$ always strictly increasing