# Arts & Science 1D06 Quiz #3 Solutions    October 21, 2015

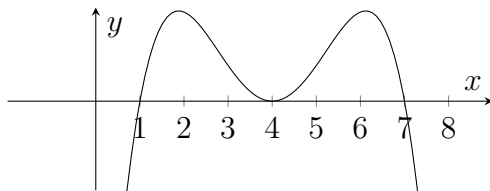Full Name:_____    Student # :_____

TA:_____

Please provide detailed solutions to the problems below. Correct responses without justification may not receive full credit. The use of a calculator is permitted.
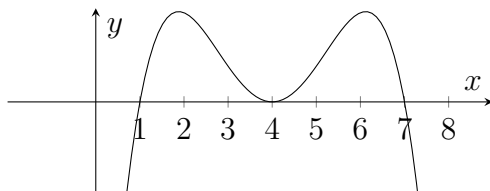
[10 marks]    (1.) In each part state the $x$-coordinates of the inflection points of $f$. Give reasons for your answers.
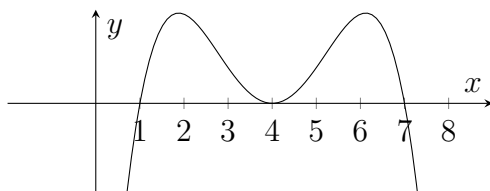
(a) The curve is the graph of $f$.



Inflection points occur for $f$ where the graph changes concavity, so inflection points for $f$ are at $x = 3$ and $x = 5$.

(b) The curve is the graph of $f'$.



Inflection points for $f'$ occur when $f''$ changes from positive to negative or negative to positive, ie maxima and minima. Inflection points for $f'$ are at $x = 2$, $x = 4$, and $x = 6$.

(c) The curve is the graph of $f''$.



Inflection points for $f''$ occur when it changes from negative to positive, or positive to negative. Inflection points for $f''$ are at $x = 1$ and $x = 7$. Note $x = 4$ is not an inflection point because $f''$ does not change sign.