MA161 Quiz 4

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Problem 4.1. If a ball is thrown into the air and its height, as a function of time, is given by the formula

$$h(t) = 36t - 16t^2,$$

find the average velocity from $t = 2$ to $t = 3$ of the ball.

Problem 4.2. Simplify the following expressions

(a) $\frac{1}{3}\ln(x+2)^3 + \frac{1}{2}\left(\ln(x) - \ln(x^2 + 3x + 2)^2\right)$

(b) $\sqrt{e^{-x^2+2x+1}/(e^{x+1})^2}$

Problem 4.3. If we are told that the tangent line to the curve $f(x) = x^2 - x - 2$ passes through the points $(0, -2)$ and $(1, -3)$, find the tangent line at $(0, -2)$.